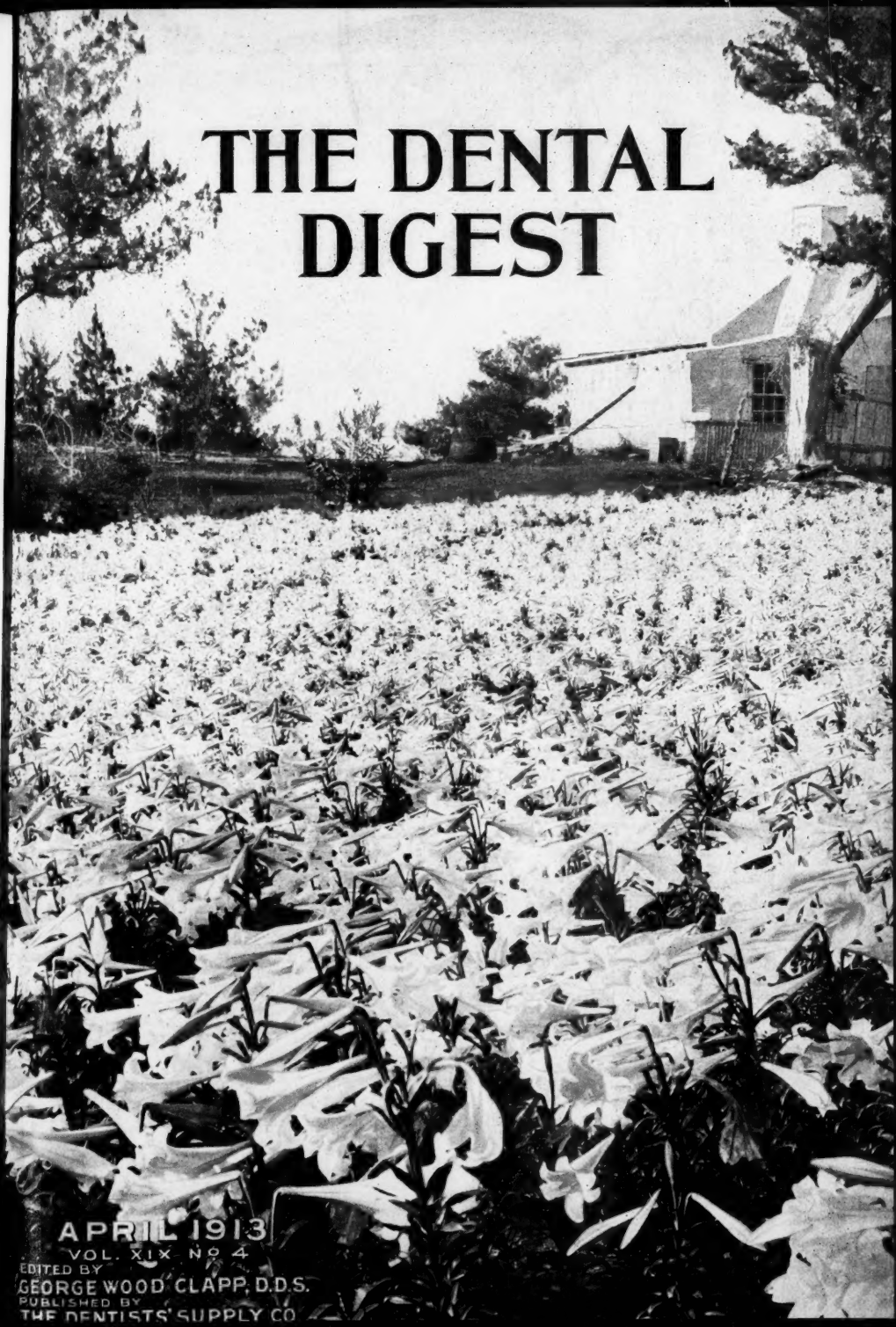
THE DENTAL DIGEST



APRIL 1913
VOL. XIX No 4
EDITED BY
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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., Editor

Published monthly by The Dentists' Supply Company, Candler Bldg., Times Square, 220 West 42d Street, New York, U. S. A., to whom all communications relative to subscriptions, advertising, etc., should be addressed.

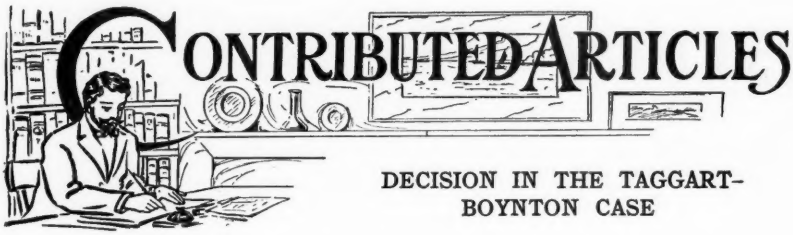
Subscription price, including postage, $1.00 per year to all parts of the United States, Philippines, Guam, Cuba, Porto Rico, Mexico and Hawaiian Islands. To Canada, $1.40. To all other countries, $1.75.

Articles intended for publication and correspondence regarding the same should be addressed EDITOR DENTAL DIGEST, Candler Bldg., Times Square, 220 West 42d Street, New York, N. Y.

The editor and publishers are not responsible for the views of authors expressed in these pages.

Entered as second-class matter at New York, January 29, 1909, under the Act of March 3, 1879.

Vol. XIX **APRIL, 1913** **No. 4**



DECISION IN THE TAGGART-BOYNTON CASE

The following is reproduced from the *Washington Law Reporter* of February 28, 1913. The gist of the decision is contained in the last three paragraphs. But on account of the long-standing interest in this case, we reproduce the entire decision.

We are informed that this is a final decision.—EDITOR.

COURT OF APPEALS OF THE DISTRICT OF COLUMBIA

GEORGE W. BOYNTON, *Appellant*, *v.* WILLIAM H. TAGGART

Patents; Prior Public Use

1. In a suit for the infringement of a patent for making molds for dental inlays and the like, held, upon a review of the evidence, that it was shown beyond a reasonable doubt that for many years prior to the original application the process described in the claims of the patent had been publicly practised on many occasions, and that such prior public use avoided the patent.

2. A decree of the court below enjoining infringement of the patent reversed.

No. 2426. Decided February 25, 1913.

Appeal by defendant from a decree of the Supreme Court of the District of Columbia, in Equity, No. 27,927, enjoining the infringement of a patent. Reversed.

Mr. Fred. B. Rhodes, Mr. E. T. Fenwick, Mr. L. L. Morrill and Mr. H. H. Bliss for the appellant.

Messrs. Dryenforth, Lee, Chritton & Wiles and Mr. F. W. Phelps for the appellee.

Mr. Justice Robb delivered the opinion of the Court:

This appeal involves a decree in the Supreme Court of the District in an infringement suit sustaining the validity of letters patent numbered 872,978, granted December 3, 1907, to William H. Taggart, the appellee, upon a divisional application filed July 12, 1907, of original application filed January 12, 1907.

According to the specification the invention relates to "a new and useful improvement in methods for making molds for dental inlays and the like." It is further stated that these molds are particularly designed for the casting of dental fillings of the type known as inlay fillings, but that "they can obviously be used for certain other types of work of a fine grade, one of their principal fields of usefulness being in the formation of other types of dental metal work, as, for instance, bridge work and the like." Searching the original specification we find that the phrase "certain other types of work of a fine grade" was intended to embrace the art of manufacturing special pieces of jewelry, for it is there written: "The process can also be used in the art of manufacturing jewelry wherever it is desired to make a single piece of any kind, as, for instance, where a piece of jewelry is made to order. The manufacturer can carve up a pattern in wax with comparative ease, as the graving operation in wax requires neither the high class of tools nor high manual skill required for graving in metal. . . . After the pattern is completed in wax, the process proceeds as herein set forth and an absolutely perfect duplicate can be obtained." The claims are twelve in number, of which we reproduce the following five as representative:

"1. The process of making patterns for dental inlays and the like, which consists in molding plastic material upon the tooth surface to the size and shape of the desired inlay."

"3. The process which consists in making a pattern of a tooth filling within the cavity to be filled and in contact with the surface thereof, removing the pattern from the cavity, forming about the pattern a mold provided with a sprue, and melting out the pattern."

"6. The process which consists in making a pattern for a cast tooth filling within the cavity to be filled and in contact with the surface thereof, from plastic material capable of being changed from its solid condition, supporting the pattern upon a sprue former, inclosing the pattern in a primary body of mold material, supporting the pattern and primary body of mold material within a flask by means of the sprue former, adding a secondary body of mold material, removing the sprue former and removing the pattern from the mold thus formed by way of the sprue."

"8. The process of making molds for casting dental fillings and the like, which consists in forming a pattern of the desired size and shape, forming a mold about said pattern with a depression in the mold adapted to form a crucible forming a sprue hole extending from the depression to the pattern and then removing the pattern."

"12. The method of forming patterns for casting dental inlays, which consists in forming moldable material to the size and shape of the desired inlay in the cavity to be filled and against its walls."

An examination of these claims discloses that they do not cover, nor purport to cover, a new process for filling teeth. On the contrary, they relate solely to the process of making *patterns* out of plastic material or wax and the process of forming a *mold* about such pattern, from which mold a duplicate of the pattern may be produced. The words "dental inlays and the like," as used in the claims of the patent, when read in connection with the specification, as they must be read, clearly embrace "bridge work and the like." It is unnecessary here to determine whether they have even broader signification, although, as previously stated, the specification specifically includes "certain other types of work of a fine grade."

To produce the pattern to which these claims relate, an impression in wax or

other plastic material is obtained; that is to say, if a tooth cavity is to be filled wax is first inserted therein, chilled and removed. When thus removed a pattern of the filling has been obtained. Substantially, the same process would be followed in obtaining a pattern for a bridge between other teeth. After obtaining this pattern it is put upon a short piece of wire, technically called a sprue former, initially coated with investment material, and then inclosed in a secondary layer of investment material. This is allowed to set when it is sufficiently heated to volatilize the wax. The mold is then complete and the gold or other metal may be inserted through the sprue hole.

We will here briefly review the prior art. It is not disputed that the art of producing metal castings by means of a mold formed of a wax pattern is very old. It is in evidence that this art was practised by the ancient Greeks and Romans and was extensively used in the Middle Ages for producing statuary and other accurate castings. This process is known as the "Cire Perdue" or "Lost Wax" process. See Simpson Bolland's "Encyclopedia of Founding," page 515. It is conceded that Cellini used this process hundreds of years ago in casting one of his most celebrated statues. It is further conceded that the burnished inlay process was also well known for many years prior to the application for this patent. See Patent No. 402,352 to Robinson, dated April 30, 1889. In that process a piece of platinum or gold foil is placed in the tooth cavity and rubbed or burnished against the walls of the cavity. The foil, then called a matrix, is usually filled with wax so as to conform to the original shape of the tooth, then removed and precisely the same process followed as in the Taggart process; in other words, the only difference between the burnished inlay process and the Taggart process lies in the use of the foil, which subsequently fuses with the "solder" or lower carat gold. The patent to Hollingsworth, No. 708,811, dated September 9, 1902, covers machines for casting dental bridges. The wax pattern in the Hollingsworth process is treated in substantially the same manner disclosed by the Taggart patent, and the casting process disclosed by Hollingsworth in no material way differs from that disclosed by Taggart. The patent to Reese, No. 200,760, dated February 26, 1878, covers a mold for casting dental plates. It is thus seen that it was old long prior to the Taggart patent to manufacture dental castings by the Lost Wax process.

It is conceded that appellant practised the process disclosed by the claims of the patent in suit, the defense being the invalidity of these claims. In addition to the prior art, as disclosed in the patents to which reference has been made, much testimony was introduced by appellant tending to show that the identical process disclosed by this patent was, for more than two years prior to the date of the original application, practised by dentists throughout the country. Of course, if the testimony amounts to proof beyond a reasonable doubt of such prior use, the defense must be sustained, as the claims must fall. Sec. 4886, R. S.; Forncrook v. Root, 127 U. S., 176; Peters v. Active Mfg. Co., 129 U. S., 530. We shall here review that evidence.

Dr. Oscar H. Simpson, of Dodge City, Kan., a dental practitioner since 1882, a graduate of the Ohio College of Dental Surgery, a member of the State Board of Dental Examiners, at one time president of the State Dental Association, and a member of the National Board of Dental Examiners, testified that he gave his first inlay clinic in about 1887, and had since given clinics at Topeka, Wichita and Newton, Kan., at the World's Congress of Dentists at St. Louis, and at other places. The witness described his progress in inlay work and further described, in detail, the method he employed in about 1898 to form a dental tip or crown for a boy by the name of Malcolm Judd. Without going into detail it is sufficient to say that the process described by the witness was substantially the process disclosed by the patent in suit. The original apparatus by which the process was practised was introduced in evidence. Not only this but the original work, which had been subsequently removed after performing a useful purpose, was also introduced. While

this piece of work was attacked by experts for the complainant we, nevertheless, are fully convinced that the process by which it was made was the process disclosed by the Taggart patent in suit. Dr. Simpson gave other instances of employing this process in his practice. He further testified that in the clinic at Wichita, Kan., in about 1898 or 1899, he described the method which he employed to form the Malcolm Judd tip or crown. In this he was corroborated by Dr. B. L. Shobe, a dentist residing at Bartlesville, Okla., who remembered very distinctly the clinic at Wichita because he then thought the process adapted to a case which was troubling him. After watching the clinic he turned to his home and tried to practise the process but failed. He then consulted Dr. Simpson at Dodge City, learned the cause of his failure, and was thereafter able to practise the process. In his testimony he gave the names and addresses of different persons for whom he did that kind of work. No matrix was employed in the clinic Dr. Simpson gave at Wichita, the wax pattern coming in direct contact with the tooth. A Mr. Lyle S. Henkel, now a locomotive engineer, an entirely disinterested witness, testified in direct corroboration of Dr. Simpson. From 1893 until March, 1897, he studied dentistry with Dr. Simpson, and his testimony is clear and convincing that Dr. Simpson, during that time, practised the process disclosed in complainant's patent in making cast inlays for teeth.

Dr. Judson O. Ball, of Mt. Pleasant, Iowa, a dental practitioner since 1880, testified concerning inlay work. In about 1889 he prepared a tooth cavity, then ground a piece of porcelain to fit the cavity, and cemented the porcelain in place. This was his first work of that kind. In 1894 a Mrs. Shaffer, living at Merrimac, Iowa, sixteen miles from Mt. Pleasant, came by appointment to have a Logan crown set. The crown had been ordered by mail but had not arrived. The Doctor desiring, if possible, to complete the work upon that occasion, took a wax impression and from it, by practising the process disclosed by the patent in issue, produced a casting which he used successfully. He subsequently practised the same process in the spring of 1895 in doing work for Dr. A. O. Pitcher, of Mt. Pleasant, Iowa. Sometime between 1895 and 1899 he employed the process in doing work for Mrs. William Gladden, also of Mt. Pleasant. In his testimony he described the work in detail. During September, 1903, the Doctor set a large inlay for Mr. F. S. Finley, a lawyer of Mt. Pleasant. This inlay was for the right central incisor, decayed on the central proximal, involving both the facial or labial and lingual surfaces of the tooth, and also the lower cutting edge surface. After the cavity was prepared wax was inserted to conform with the labial, lingual and proximal surface of the tooth; in other words, a wax impression of the filling or casing was taken. A casting was then produced by a process substantially the same as that of the Taggart patent. This casting was then cemented in place and has since done service. The original apparatus by which this casting was made was introduced in evidence. The names and addresses of other parties for whom work of a similar character was done by Dr. Ball were given by the witness. Mr. Finley, formerly City Solicitor of Mt. Pleasant, Iowa, his home, testified in corroboration of Dr. Ball. He remembered that some time during the year 1903, when he and Dr. Ball were together in the city council, the Doctor had filled a front tooth for him. The witness was asked what circumstances, if any, impressed this particular occurrence upon his mind, and replied: "The manner of putting this filling in was impressed upon my mind from the fact that the tooth was prepared and an impression taken of the tooth and the filling cast, and cemented into place, which was different from any other filling that Dr. Ball had ever put in for me, and I inquired of the Doctor at the time the filling was put in about the manner of his doing it, and he explained it to me. He told me that he had taken the wax impression of the cavity. I knew that he had done this; he then showed me the apparatus where he had set the wax filling on a point of a cone and put a cylinder over it and then used some substance, something like plaster of paris, to get the form of the filling; he then

removed the cylinder with the plaster cast, removed the metal cone, and explained to me how he heated the plaster cast or the wax in the plaster cast, how it would come out and leave the cavity. He then filled the cavity in some way with gold, making the cast which was cemented into my tooth. I merely have his explanation as to how he made the filling, aside from the fact that I knew he took the wax impression, that the filling was put in, in one piece, and he showed me the apparatus where he said he had made it, and explained to me the process of making it as I have explained it above. The witness stated that the apparatus which had been introduced in evidence was exactly the same in principle and similar in fact to the one used in making the casting for his tooth. There was no cross-examination of this witness, nor was an examination sought to be made of the tooth which the testimony showed had been filled in 1903. One Robinson, who had been Dr. Ball's janitor for seventeen years, also testified concerning the Doctor's use of the process here involved.

Dr. Valentine H. Hobson, of Richmond, Ky., testified to the circumstances surrounding the practice, in 1889, of the process of the patent in issue. The Doctor subsequently practised the process for other patients and gave their names and addresses.

Dr. William E. Harper, of Chicago, Ill., a man of wide preliminary training, testified to casting dental bridges by the present process and to the giving of clinics in 1893 or 1894, in which he explained it. The names and addresses of people for whom he had made cast bridges were given.

Dr. Merrill W. Hollingsworth, who, as we have seen in 1902, patented a machine for casting dental bridges and who, therefore, was thoroughly familiar with the lost wax process in the manufacture of dental castings, testified to having made bridge castings by the process in issue as early as 1893, the names and addresses of different people for whom he had made castings being given. Dr. Hollingsworth's testimony was corroborated by Dr. George A. White.

Dr. Jacob G. Schottler, of Milwaukee, Wis., a practising dentist and also a teacher of dentistry, testified to the casting of a gold inlay in 1898 by the process in issue. This casting was for a patient who refused to have the work done in the old way owing to nervousness. The name of the patient was given.

Dr. George W. Blaesser, of Cedarburg, Wis.; Dr. Emil M. Kapitan, of Manitowoc, Wis.; Dr. John M. Higgins, of Chilton, Wis., all testified in corroboration of Dr. Schottler. A Mr. Thomas H. Savage, a stenographer, testified that Dr. Schottler took a wax impression of one of his teeth that had been broken off, and from this produced a tip which was cemented in place. The witness was asked in cross-examination whether he had any objection to permitting an examination of this tooth by a dental expert, and replied that he did not. The record does not show that any such examination was made, however.

We come now to the testimony of Dr. George B. Martin, of Frankfort, Ind., who has been engaged in the practice of dentistry since 1884. In 1888 Dr. Martin organized the Indianapolis Post-Graduate School of Prosthetic Dentistry, and was president of the school, and also instructor, his subjects including crown, bridge and inlay work. When he took up the practice of dentistry he was already familiar with the making of patterns for metal castings in other lines of work. The Doctor testified in detail to practising the process here involved and to the disclosure of that process to his students and others. He introduced in evidence various apparatus by which his work was accomplished. His testimony covered a period from 1890 on. Dr. Blain H. Sellers, of Indianapolis, Ind., who attended the Indiana Dental College in 1891 and 1892, during the time Dr. Martin was an instructor and demonstrator of Prosthetic dentistry, testified in corroboration of Dr. Martin. The witness was asked to describe the instruction he received in the casting of bridges and crowns, and replied: "Well, we first took the crown, made the crown to suit yourself, I always did, and then take a piece of wax and place that into the mouth and

have the patient bite down onto that, and that would form the bite for the articulation, and then carve the wax any size and shape that we would want the cast itself to be. We would invest that in the plaster of paris, placing into the wax an instrument to act as a sprue; after that part of the investment became hardened we added to that another on top and after that had hardened we removed the two pieces separate and then removed the wax from the mold and we melt our gold and pour it into what we called the die, and then place the counter die on top of that, and the impression would form the cast bridge itself." Drs. Cravens and Bloor, both of Indianapolis, also testified in corroboration of Dr. Martin. Dr. Myron E. Le Galley, of La Fayette, Ind., who was a student at the Indiana Dental College from 1892 to 1895, inclusive, testified in detail as to the instruction which he then received from Dr. Martin in the art of making cast bridges. The testimony of Dr. Le Galley is clear and leaves no room for doubt that the process of the patent in suit, as applied to dental bridges, was fully explained to, and understood by him during the time mentioned. It was stipulated that Dr. Clarence Williams, of Terre Haute, Ind.; Dr. W. H. Upjohn, of La Fayette, Ind.; Drs. Johnson and Minnie Howes, of Indianapolis, Ind., if called as witnesses would testify exactly the same as Dr. Le Galley as to the instruction received by them while in attendance at the Indiana Dental College through Dr. Martin, their attendance upon said school covering a period between 1889 and 1897. In addition to these several witnesses, Miss Martha Vories, who was Dr. Martin's assistant for about a year, commencing in 1897, testified to seeing Dr. Martin practise the process in issue. The testimony of this witness shows that she thoroughly understood the process at the time she saw Dr. Martin practise it.

Dr. Joseph Head, of Philadelphia, Pa., whose article on inlays is incorporated in the American Text Book of Prosthetic Dentistry, who is a graduate of the Philadelphia Dental College, a graduate in medicine of the University of Pennsylvania, and a man evidently of wide experience and attainments, testified to the casting by him in the apparatus of Dr. Ball, which had been employed in making the Finley inlay, of a cast inlay. Dr. Head says: "I find that the material and apparatus that I employed and which is stated to have been used by Dr. Ball to be capable of producing an inlay as perfect as any inlay I have ever seen." Dr. Head also produced a cast gold inlay which he had made by the use of the same investment compound and apparatus used by Dr. Simpson, and to which reference has been made. There is other corroborative testimony in the record, but we do not deem it necessary to review it.

Has the defense of prior use been made out? As no two cases are exactly alike, it is apparent that the character of the invention involved, the prior art, and the particular circumstances surrounding each case must be considered in weighing evidence of prior use. The contention in this case that Dr. Taggart's discovery was revolutionary in character is not sustained. On the contrary, as appears from the record art at the time Dr. Taggart applied for his patent, dental castings produced by the lost wax process were well known. Having this in mind, there is nothing improbable about the testimony of appellant's witnesses. Indeed, Dr. Taggart himself, according to his own testimony, was in full possession of the idea involved in these claims more than ten years before he applied for his patent. The thing that most troubled him, and that deferred his patent application, was the production of a machine by which the gold could be quickly and easily forced into the mold after its completion; in other words, the process of producing such patterns and molds, generally speaking, was already well known. The real difficulty, therefore, was in producing a device that would quicken the practice of the process and thus induce the profession generally to make use of it. This is apparent from an examination of Dr. Taggart's bill in this case, wherein he states: "Your orator has expended large sums of money preparing for the market machines and apparatus with which the method of said patent can most readily and perfectly be practised and is now prepared to supply the demand for such machines and apparatus." The

Doctor's testimony also shows, we think, that it was the production of these machines that consumed time, and not the evolution of the process.

The testimony which we have reviewed comes from witnesses whose standing is unchallenged in this record. Several of these witnesses are entirely disinterested. The cross-examination of nearly all of them was confined to a few questions as to the character of the investment material employed, and considerable stress is laid in the brief because one of these witnesses, when recalled, failed to include in the formula then given an ingredient contained in his former answer to a similar question. We attach no importance whatever to this. In the patent itself Dr. Taggart conclusively disproves the contentions of his counsel that it required any special skill to evolve a formula for investment material, for he says: "The sprue former is then used as a handle to support the pattern and the entire pattern is covered with a primary coating of investing material. This investing material may be any one of the various dental investing materials on the market." Moreover, the prior record art contained ample information concerning the investment feature of complainant's patent. The real question which we are called upon to determine from the evidence before us is whether the various dentists who have testified, or any of them, were in possession more than two years prior to the date of the original application for this patent, of the idea attempted to be covered thereby, and whether they, or any of them, gave expression of that idea in a practical and public way. It is of no possible consequence that by the use of Dr. Taggart's machine gold inlays and the like may be produced more cheaply and rapidly than they were produced by dentists who have testified. It is enough if those dentists took a wax impression in the manner described by these claims, and formed a mold around the pattern thus obtained for the purpose of casting a dental inlay or the like. To hold that this was not done, would be arbitrarily to disregard and set at naught the testimony of witnesses whose character and reputation are unimpeached, and whose testimony is reasonable and in entire harmony with the circumstances of this case. We are unwilling to assume such a position. We are fully persuaded that the evidence shows beyond a reasonable doubt that for many years prior to the filling of the original application herein the process of making patterns and molds for dental inlays and the like as expressed in these claims, had been publicly practised upon many occasions. This finding avoids the patent and renders it unnecessary to determine whether the claims thereof were anticipated by the prior record art.

It follows that the decree must be reversed, with costs, and the cause remanded with directions to dismiss the bill.

Reversed and remanded.

PUBLICITY AN AID TO PREVENTIVE DENTISTRY

By Howard P. Barber, D.D.S., Springfield, Mass.

An article reprinted from the New York *Times* in The Dental Digest about a year ago asked two pertinent questions. They were, first, "Why do not the dentists of a given community advertise?" Second, "If they have something to offer the public, why do they not offer it through the best medium there is, namely, the public press?" These questions provide food for reflection, especially when asked of us by a layman. We most assuredly *have* something to offer the public, why then should we not advertise it?

We are held back from advertising because we have had it everlastingly dinned into us by smug, self-satisfied gentlemen that it is unprofessional, unethical and undignified for the profession to advertise, that the proper thing to do is to wait and let the public seek us out. These men have dominated our societies and these latter in turn bar the advertiser from membership.

This hoary old doctrine or code of professional ethics as applied to advertising is absolutely wrong, founded as it is upon selfish principles, and while it dies hard, still it must die. A professional man, clergyman, lawyer, physician or dentist is primarily an adviser and teacher. Is it then unprofessional for him to use the great modern power for good, namely, educational advertising?

To be ethical is to observe the Golden Rule. It cannot be unethical to give the public knowledge—through advertising of what our services are and what those services are worth to them. We owe much of *our* knowledge to men in other callings and lines of business because *they* advertised. All advertising that is good is educational. It has to be educational to be good.

The public is entitled to all the knowledge we can give it, and it is neither unprofessional nor unethical to spread this knowledge in the manner to reach the greatest number in the quickest way. It is on account of our *waiting* attitude that the public is to-day twenty years behind the times on dentistry.

The profession will not lose dignity by good advertising, for as the public learns what our services are and what they mean, they will look up to us with increased respect. As the matter stands now the knowledge which we give to our patients is too apt to be post-mortem knowledge.

We say, "I am very sorry, it is too bad you didn't come before. I might have prevented this condition. I might have saved this tooth without a conspicuous filling. I might have saved you the pain and annoyance caused by that abscess. I might have stopped the ravages of Riggs disease in your mouth, or with a crown or inlay I would have saved those teeth for you, etc."

We all know these cases. They form the bulk of our practices. The knowledge that the condition might have been avoided offers no consolation to the patient. He is entitled to the knowledge of the consequences of neglecting his teeth and it is up to us if we are to be faithful to our obligations to give him this knowledge before it is too late.

The patient says, "Oh! If I had only known before." And what can we say? It makes me feel uncomfortable every time I hear this.

We ought not give him the chance to say it. We can so advertise our wares that he will not be able to say it and look us in the face.

I have proven to my own satisfaction that people are willing and ready to be educated in our offices when they come for services. If we present the matter to them in the proper manner, in well-chosen words, we can sell them what they ought to have. Why, then, should we not be able to educate them into our offices before pain or impaired appearance drives them to us? We *can* do this, and, moreover, it is our *duty* to do it.

The tooth-brush and dentifrice manufacturers are advertising—big advertising, too—and their appeal is mostly along educational lines. It is good business for them. Why shouldn't we, who ought to be able to present the subject more forcefully and truthfully, do this educational advertising? Why also should we neglect and leave the broad field of publicity to the fakirs and charlatans in dentistry who prey upon the public with their "new patented discoveries," "painless methods," "freak substitutes for the natural teeth" and the ever insistent cry of cheap prices, which prices the victim often finds to be higher than our own? We know that this advertising is read by very many people, as evidenced by the demands we have in our practices for "Vitalized air," "roofless plates," "teeth without plates," etc. These same people would read advertising of an educational nature and would soon discriminate between the two.

The great thing in medicine to-day is prevention; so is prevention the great aim of oral hygiene. Very few of us can practise preventive dentistry, because we have so much to do lower down in the scale and many of us are not properly fitted for the work.

At dental school—only a few years ago—much greater attention was paid to making plates with silky gloss and perfect occlusion than to the prevention of the condition which made them necessary; much more attention was given to making a beautiful filling or crown than how to prevent caries. In fact, no research work along these lines was even attempted and no encouragement whatever given to do any.

Why was this? Because we as dentists do not see the patient in most cases until nothing but operative and reparative work will answer. It makes of us skilled mechanics, not physicians.

Were we to place what *we* know before the public in the proper manner we could, some of us at least, qualify as and become in fact, oral physicians. Our practices would have but little reparative work, and the fees would increase. The public is willing to pay for our services according as those services seem valuable to them.

Good educational advertising well presented in the public press is

the most effective way, and our societies should take this up, advertise our wares, drive the fakirs out of business and put the practice of dentistry on a higher plane, both socially and financially, than it is to-day.

It is the spirit of progress and is bound to come. Let us then do our best to hasten the time, when pain in the dental chair and tiresome operations will be a part of history, when the only plates and bridges will be in museums and the dentist looked up to as a *truly* professional man.

CARE OF THE TEETH OF THE INSANE

By F. R. Merz, D.D.S.,

Resident Dentist, Elgin State Hospital, Elgin, Ill.

On September 1, 1912, I was appointed by the Board of Administration to establish the dental service in the Elgin State Hospital, and I now have the care of the teeth of the 1,600 inmates, also examine every new patient within twenty-four hours after their admission to the hospital.

My work consists of examinations, extractions, cleanings, cement and amalgam fillings. The state does not furnish the patients with plates, crowns, or gold fillings. By filling the teeth with cement or amalgam we are able to make the patient comfortable.

As my equipment did not arrive for two weeks, I made a systematic examination of all patients by going to the wards and ascertaining the dental needs of each patient. Of course, some positively refused to submit to examination, fighting if forced, and becoming resistant and abusive. Such patients I am glad to leave alone, for there are hundreds of others who appreciate my work and thank me for my trouble. About 80 per cent. of the insane patients can be worked upon, although a few try to bite my fingers. I found the teeth in very bad condition, many having tartar deposits beyond description, also many roots. I have extracted nearly 600 teeth and roots where it was necessary.

It has been said that an insane patient feels little or no pain, but let me say right here that most insane patients are as susceptible to pain as you or I. But I had a male patient for whom I extracted twelve roots, who never blinked an eyelash or made any movement that would show he was in pain. I don't believe he really felt any pain. Teeth that are loose I let remain if they have given no trouble. I

devitalize and fill root canals and treat their teeth with as much care as I did my patients in private practice.

There are only three resident dentists in the state that care for the insane; there are visiting dentists for other institutions run by the state. At times, being "*Dentist to the Insane*" is strenuous work, and I would advise any dentist with little patience and less tact not to apply for this kind of position, for many patients are like children and have to be treated as such. Many people think that because a man is insane he is at all times a raving maniac and dangerous to get within reach of him. We have a few who are this way and are confined to the violent wards, but the majority of insane patients have their rational times and appear to be normal. This is the time when they will submit to dental operations without trouble. Still I doubt if there are many dentists who would prefer this position to private practice, for, believe me, it's hard enough to please sane people, let alone those who are insane.

SHORT-BITE TEETH

By Loomis P. Haskell, D.D.S., Chicago, Ill.

The article in the Digest upon short-bite teeth is very timely. It is surprising how many dentists use short-bite teeth when they are not necessary. A dealer told me that some dentists ordered entire stocks of them. They are needed when short teeth are needed, and then only, for they are very objectionable, because the rims are so near the incisal edge that it causes a thickening of the gums, more or less interfering with enunciation, and often in contact with the lower teeth.

Those patients whose natural teeth show very much in consequence of short lips, should have, correspondingly, a show of artificial teeth. If they do not, the necessary shortening of the bite will cause the upper lip to shorten, as the gums shrink. Upon inserting the permanent teeth they should be lengthened, and the lip will soon resume its natural shape.

A few years ago I had a case of this sort. I arranged the teeth as I thought proper, but patient insisted they were too long; I changed them. Several years later I saw her. She exclaimed, "Oh, I wish I had let you have your way; my teeth are too short!"

The teeth had not shortened; the lip had lengthened, as I told her it would.

It is unfortunate that so many teeth are too short, no effort being made to restore the features.

ORTHODONTIA OF THE DECIDUOUS TEETH *

By E. A. Bogue, M.D., D.D.S., New York City, N. Y.

Seventh Paper

INSTRUCTIONS FOR MAKING THE JACKSON APPLIANCE †

This appliance was intended for adults and adolescents, but it has been used for young children, although it seems rather heavy for children less than six years old.

Procure materials for twelve appliances, calculating two sets of appliances for each of three cases. This will involve about the following:

Three feet of German silver base wire, calculating six inches for each appliance. If the cases are all permanent teeth, this base wire should generally be No. 11 gauge. Smaller wire has been found too weak.

About five feet each of Nos. 18, 19, 20, and 21 for wire clasps and finger springs. All these wires should be German silver, and *unannealed*. It can be procured by weight at Paterson Brothers, 27 Park Row, New York City.

The plate metal needed for partial clasps for these six cases should be 36 gauge and two inches square, which will cut to good advantage. A piece of plate metal, two inches square, of 28 gauge, will also be needed for various uses.

The solder used in these appliances is chemically pure tin, sold in shot form by Eimer & Amend, corner Eighteenth Street and Third Avenue, New York City. A tinner's soldering iron, weighing 1½ pounds per pair, at hardware store, a block of sal ammoniac, procurable at any drug store, and a small wide-mouthed bottle of chloride of zinc in solution for flux.

The collar metal should be for molars 32 gauge, and for incisors and cuspids 36 gauge. A piece of $1 \times 1\frac{1}{4}$ inches will be needed for the cuspids and about the same amount for the incisors, and two pieces $1 \times 1\frac{1}{2}$ inches for the molars will be needed for the six cases.

A small pair of curved plate shears, a pair of flat-nosed pliers, a pair of round-nosed pliers, clasp benders, contouring pliers, a half-

* These papers were commenced in the October, 1912, number.

† I am indebted to the kindness of Mr. C. P. Sweet, to whom I was referred by Dr. Jackson, for the directions for the construction of the appliances which bear his name. Jackson's "Orthodontia" has a fuller description.

round gold file, medium cut, all procurable at a dental depot, a hand vise and a heavy flat file, procurable at a hardware store, complete the list of tools that are absolutely necessary to do this work.

A flux for gold or German silver is made by mixing pulverized borax and vaseline, equal parts, and mixing cold. This will stick a band for sweating or soldering when the ends are lapped. Chloride of zinc, a saturated solution in water, makes the best flux for soldering with pure tin, and both these should be included in the materials procured.

Now let us take a case representing a child twelve years of age, both of whose dental arches are too narrow, and with the upper cuspids erupting too far up and also too far outside the arch, and with the lower principal molars, which come at about the sixth year, in distal or posterior occlusion to the upper molars. This involves nearly all the various irregularities generally found at this period of the child's life.

The first thing is to get a study model of the teeth and to diagnose the case. If found to be as described above, we should place small wedges in front of the second- or twelfth-year molars on the lower jaw and on each side of the first or principal molars on the upper jaw. Within one or two days, or even after five or six hours, collars or bands can be accurately adapted to these molar teeth, using the plate that is 32 gauge thick. These collars can be made by cutting a strip lengthwise from the plate and about $\frac{3}{16}$ of an inch wide, bending this around the molars accurately and marking the ends where they lap; or the end of this strip can be turned up and drawn together with pliers and squeezed together until the band is drawn tightly around the tooth; it can then be taken off, soldered or sweated together, and replaced for trial. When these bands fit accurately they should be removed from the teeth and a piece of base wire, No. 11, about $\frac{1}{8}$ inch long, should be filed square and soldered to the buccal side of each, about $\frac{1}{16}$ of an inch from the gum. This lug should be left nearly full thickness at the end nearest the gum, filed to a V-shape at the grinding edge of the molar band. A similar band should be made from the metal No. 36 gauge for the bicuspids on the upper model, and the cuspids on the lower model with lugs made from 18 wire or from heavy plate in a similar way to those on the molar bands and soldered to those forward bands on the labial side. These bands should then be contoured to fit the tuberosity of the teeth, and should be cemented to place before the spaces procured by wedging shall be lost (if they cannot be placed the same day, wedges should be left in until they are placed).

Impressions should then be taken, showing the bands and neces-

sarily showing all the lugs. Models should be made. Then we are ready to begin the work of constructing the appliances.

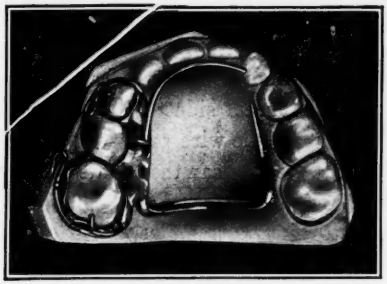
TO TAKE IMPRESSION FOR FIXTURES (PLASTER IMPRESSIONS, UPPER)

Use a tray with a round bottom. Do not fill anything but the lower grooves, where the teeth go, with plaster; leave the center of the tray empty. With a small spatula, put plaster under the cheeks—if upper (or lower) muscular attachments are wanted. Press cup up until teeth nearly touch the tray. Keep in position until plaster is *fully* set. Remove tray and leave plaster on the teeth. With a penknife cut fairly wide V-shaped grooves over the cuspids parallel with them, and other grooves along the cutting edges of the incisors and molars almost through to the teeth. Pry off the side pieces first, then the front, and the palatal portion comes out whole, usually making four pieces. Wash the pieces and tray clean of chips, and replace them in the tray at once. Let set and dry and then wax together; varnish with two coats of shellac; let dry, and then give one coat of sandarac, which makes a smoother finish. Let impression lie two or three minutes in a bowl of water before pouring, then shake and blow all the water out, and pour at once when impression is still damp but not wet. Mix plaster to a creamy consistency, and pour out a little plaster on a bit of glass, and as setting begins, invert impression and model on this plaster. When set, remove impression tray, cut away impression at grinding surface down to the cusps of all the teeth on a level with the V-shaped groove that was cut to remove the impression from the mouth. Then trim off excess of plaster until the line of varnish becomes visible, then with thin knife blade pry off the buccal pieces, one after another; cut the lingual piece into quarters and remove the back ones first without any violence, as it would be easy to break off plaster teeth.

The model is now made. Do not varnish it; let it dry. Lower models also are absolutely necessary. They are made like upper models, only when grooves are being cut in the lower plaster impressions to enable them to be removed, cut V-shaped grooves on the lingual sides of the lower cuspids lengthwise of the teeth and remove the back ends of the impression first.

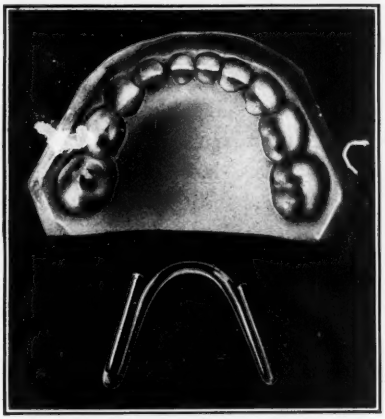
The models are now ready to have the appliances constructed upon them. Be sure that these models occlude exactly as the natural teeth do; and while they are occluded in position, mark with a pencil from top of upper model to bottom of lower one on each side of the model on a straight line that passes over the anterior buccal cusp of the last

upper molar in the mouth, whether it be temporary or permanent. This indicates the natural occlusion at a glance.



A.—Upper model of child 5 years old. Appliance tacked together on right side (slightly reduced).

B.—The different elements (or pieces) of the Jackson appliance for the same model before they are assembled (enlarged to show details).



C.—Lower model of same child showing curve of lower base wire. The same curve is also used above when the back teeth are to be spread (slightly reduced).

A small curved hatchet excavator can be used to groove slightly around the gum margin on the lingual side of each tooth to be used for anchorage, to the depth of one-half millimeter. A half moon-shaped piece as long as the width of the tooth at the gum margin from front

to rear, and two-thirds of the height of the erupted portion of the tooth, is cut out with curved shears from the 36-gauge metal. This is contoured with the contouring pliers to fit the shape of each tooth against which the appliance is to rest. These partial clasps should *not* be contoured for the teeth that have collars cemented to them, but should be bent with a clasp bender. For all other teeth the partial clasps should be over contoured, so that they touch only at top and bottom edges.

For the molar wire hook clasps use 19-gauge wire, smooth the end carefully with a file, and with round-nosed pliers bend first the hook which is to lie above the lug on the anterior buccal side of the molar with collar, the hook facing the gum; from there the wire passes toward the posterior side and is curved around the molar near the gum, close against the partial clasp, the partial clasp being held carefully in place all the time so that the wire is adapted to it; cut this clasp wire off at the front edge of partial clasp, then tack it with the least bit of solder, so as to hold it securely in place.

Use 21-gauge wire for the hook clasp for the cuspid tooth. Bend the hook in the same manner as for the molar, with the hook toward the gum pass the wire forward of the cuspid, between it and its neighbor, then down and backward near the gum, close against the partial clasp. Extend this wire backward two, sometimes three, teeth, for this wire helps to hold the partial clasps in position. Then holding the wire clasp firmly in position against the partial clasps, tack each partial clasp to the wire. The other side of the appliance is constructed exactly in the same way. At this stage place the upper and lower models together to see where the little wire spuds can be placed without interfering with the occlusion. The object of these little wire spuds is to prevent the appliance being driven into the gum by the bite. They can be put on the ends of the molar teeth anywhere that a slight depression exists, into which the antagonizing teeth do not bite. These wire spuds should be long enough to extend half around the adjoining tooth, and they should be tacked into place when made. The base wire should be No. 11 gauge to be firm enough not to be bent accidentally.

If only the anterior part of the arch needs spreading, the base wire is made to conform to the arch of the palate between the last molars, as nearly as possible at the necks of the last molars. The base wire should be six inches long and should be bent with the thumbs to conform to the roof of the mouth, and then should be bent forward toward the cuspids, using round-nosed pliers, so as not to break the wire. When it reaches the cuspids, cut it off, and placing it in the hand vise,

with a coarse flat file diminish its size from the posterior curve to the front end, making it taper to a point. Do not nick or mar the curves made by bending, as the base wire is liable to break afterwards.

Place the base wire on the model and adjust to the partial clasps as closely as possible. (See Illustration No. 3.) If the incisors need to be moved outward, finger springs of 17 or 18 gauge are attached. These two finger springs are constructed thus: One end of each is curved around the segment of a circle whose radius is equal to the width of the two upper central incisors plus $\frac{24}{100}$ of an inch. The six upper front teeth should, when normal, be arranged around a circle of this size. This circle being divided into six equal parts, the finger springs for the six upper front teeth should be curved about two of these parts, and the ends of the wires, after one third is made to follow the curve of the circle, should be left straight to be soldered into the appliance opposite the first molars.

The base wire, having been kept as near as possible to the gum, is now tacked lightly on both sides near the molars to the partial clasps and wires that are already in place. The straight ends of the finger springs are placed close between the base wire and partial clasps, while the curved ends are drawn close to the necks of the incisors. The back ends are then tacked with a little solder (pure tin).

Place plenty of flux on the side to be soldered, tin the soldering iron well by having it quite hot and rubbing it on the sal ammoniac block with plenty of pure tin, then with the soldering iron pick up, say, two drops of the pure tin, and beginning at the front end, place on the side already fluxed these two drops of tin, repeating this operation, gradually going backward until this side is completed, without allowing any of the wires to move.

Then do the same for the other side; let it cool, remove from the model, and wash off in water and dry it. Then file the top (occlusal ends of teeth) off to the edges of the partial clasps, being careful not to scratch any of the wires with the file; replace on the model and try the lower model to make sure there is no undue contact of any of the lower teeth against the appliance. Then file off all excess thickness, round it over with a fine half-round gold file, and polish on lathe with a buff wheel and pumice and water, then wash clean.

The lower appliance is made exactly like the upper, except that the base wire, instead of being fitted to the palatal curve, as it is above, is carried forward and fitted to the lingual curve of the lower jaw, not too close. After the center curve is bent with fingers and thumbs, the ends of the wire are bent with the round-nosed pliers opposite the last molar so as to point forward toward the cuspids, and the excess is cut

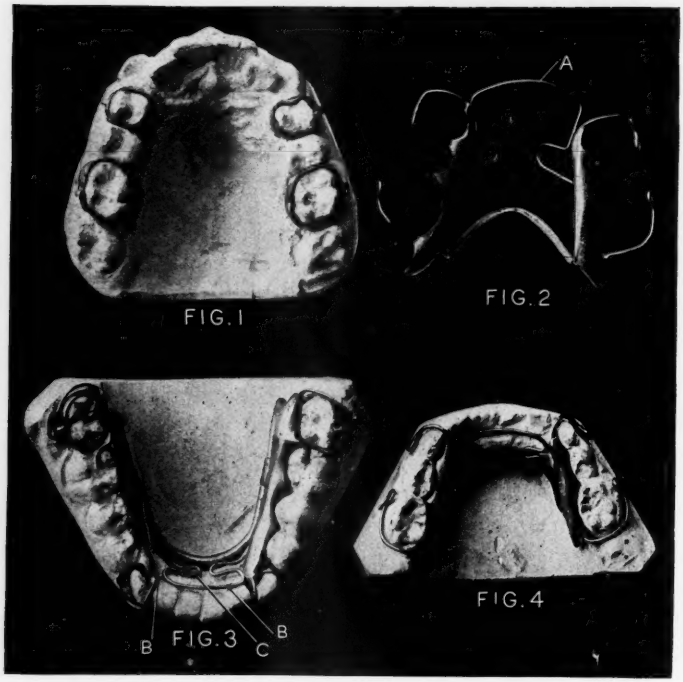


Fig. 1. Model of upper arch of teeth that requires: first, spreading; second, advancing the four incisors; third, the operation of inter-maxillary rubbers that draw the upper molars forward, and the lower molars backward until perfect occlusion is secured; fourth, the procuring of accurate occlusion of all the grinding teeth, and the proper overlap of the upper incisors, after all these movements shall have been accomplished. Bands with spuds on the buccal sides are cemented on all four of the teeth in the mouth as shown on the model.

Fig. 2. Jackson appliance, with wire clasps and hooks for the inter-maxillary rubber bands, and finger spring A to push the four incisors forward, adapted to and ready to be placed on the upper teeth represented by Fig. 1. The only parts lacking are bands with spuds on the lingual sides that should be cemented to the lateral incisors, after the spreading is partly accomplished and room has been gained for the four incisors to pass forward beyond the cuspids.

Fig. 3. Lower model of the same mouth requiring same treatment as the upper teeth. The molar bands and clasps have been placed as far back as possible so as to cause the maxillary rubber to be more nearly on parallel lines with occlusion. Bands with spuds on the lingual sides will also be placed on the two lateral incisors at B where the lateral spread shall be enough to let them pass the cuspids. After cementing these bands, and allowing the cement to harden, finger spring at C will be made to press gently forward on the incisors.

Fig. 4. Jackson appliance made with 15-gauge wire for the base, and with clasps of 20-gauge wire for a child of 4½ years of age.

off at the cuspids. The base wire is then put in the hand vise and the ends are filed off to a point, as was done with the upper appliance. All the other steps are exactly like those taken for the upper. (See Illustration *C*, Lower Base Wire, p. 199.)

In case an upper arch of teeth needs to be spread at the molar region, the base wire should be curved forward on the palate to the deepest point of that palate, so that when you wish to draw the ends of the base wire apart, either front or rear, you can do so and the main curve of the base is not interfered with.

If at any time it becomes necessary to press one or more of the teeth outward, a piece of 28-gauge plate metal can be cut to the shape and size of a partial clasp for that tooth, contoured with contouring pliers to fit the tooth, and then be soldered into the partial clasp already in the appliance. In soldering this extra partial clasp, tack it at the top first, then turn the appliance over and solder it completely at the bottom edge. Then turn back again and complete the top edge. Do not try to solder the middle, as that would melt the attachment at the top. This addition to the partial clasp can be repeated until the tooth has been moved far enough.

Should any teeth need to be rotated, it should have a collar fitted and cemented to it, to which has been soldered a tube one eighth of an inch in length that will carry a wire of 19 gauge. This wire should be an inch long or more, and should be bent to fit the tube and follow the line of the teeth, until a little hook can be attached to some part of the appliance to hold this wire in position to do its work. This wire is straightened from time to time at the point where it comes out of the tube, and the rotation is thus accomplished. None of these appliances work automatically. They require strict attention from the operator all the time in order to make progress.

The most that can be expected from any appliance is that, if neglected, it will do no harm, and that quality is possessed by the Jackson appliance.

63 West Forty-eighth Street.

(This article is expected to be continued in the May number.)

Soldering Bridge-work.—Do not use low-grade solder on a crown or bridge. It contracts, pits, oxidizes, and makes weak construction.—W. Spaulding, *Dental Record.*

NOVOCAIN FOR EXTRACTING

By F. C. Cunningham, D.D.S., Effingham, Ill.

Since the discovery of novocain in 1905 by Einhorn, there have appeared in dental literature relatively few articles discussing its use in dental operations, especially for the painless extraction of teeth. The writer has been using novocain in different solutions and in different modes of preparation since within three years of its discovery, and has for nearly three years past been using a method that has proved wonderfully successful for all dental operations coming within the scope of the average practitioner. It is the purpose of this paper to give very briefly a description of the method and to set forth the great advantages of using novocain in anticipation of inducing more of the profession to take up the use of this wonderful local anæsthetic.

The writer has found it most convenient and practical to use novocain in tablet form, making a fresh solution in distilled water that has been boiled just previously, for every case requiring its use. Each tablet represents:

Novocain	$\frac{1}{3}$ gr.
Adrenalin	$\frac{1}{1200}$ gr.
Sodium chloride	$\frac{1}{8}$ gr.

These tablets are on the market and can be procured from most any dental depot, but the writer has found it most economical, besides being more positive of the strength and purity of the drugs, to have them made by some large drug firm to order, in lots of one thousand or more.

Novocain possesses the same anæsthetic power upon the peripheral nerves as cocain. Even in one-quarter-per-cent. solution it is sufficiently powerful to anæsthetize the larger nerves, or, in other words, *novocain is equal in anæsthetic potency to any known local anæsthetic.* This being true, its greatest advantage is that novocain is only one sixth as poisonous as cocain. If we are given a patient showing a certain idiosyncrasy to the toxic action of cocain, in doses ordinarily administered for extracting one or two teeth, we can administer six times that quantity of novocain before observing the same idiosyncrasy. In other words, using a two-per-cent solution of novocain, the possibility of any toxic effect being produced is just one sixth that shown when the same dose of cocain is injected. This fact alone is sufficient, in the writer's judgment, to exclude from his practice the use of cocain for extracting.

The addition of adrenalin in small doses acts as a vaso-constrictor and localizes the area acted upon by the novocain, thus rendering still

more remote any probability of toxic symptoms being shown. Adrenalin also prolongs the anæsthetic effect and tends to make it more profound.

Adrenalin is the extract of the suprarenal capsule and the dose in connection with a local anæsthesia should not be over 1/1000 of a grain, as larger doses have a too pronounced depressing effect on the circulation and respiration.

Sodium chloride in the proportion found in the tablet makes practically a physiological salt solution which is advantageous in allowing the anæsthetic to act more quickly on the nerve cells, causing less pain upon injection and in promoting healing of the wound after the operation.

One tablet of the above formula, dissolved in about twenty minims of distilled and boiled water, makes a two-per-cent. novocain solution. For the extraction of one or two teeth the writer uses two tablets in about forty minims of water, allowing for some waste in the technic of injection, etc. Thirty minims of a two-per-cent. solution deposited in the tissue is sufficient for the ordinary single-tooth operation Where the case requires injection over a large area, as for the extraction of eight or ten teeth, when clearing the mouth for an artificial denture, three tablets are dissolved in about eighty minims of water, weakening the solution, but allowing freer injection with less probability of an overdose. This danger, it should be said, is practically negligible, and as much as two grains have been administered at one sitting for the extraction of eighteen to twenty teeth in both jaws and not one bad result noted.

The solution should always be mixed fresh for each case as it is presented, thus insuring full potency and positive action of the drugs at all times. Care should always be used in being sure that the water is sterile, distilled, and boiled, and the tablets kept free from contamination. They are sterile when manufactured and with a little care should remain so indefinitely.

For the instrument of injection the writer uses an all-metal syringe, one with a piston, preferably of German silver or other non-corrosive metal. The all-metal syringe has the advantage of being durable, standing considerable pressure, and of being easily sterilized in a number of ways. For all practical purposes, a thorough flushing with ninety-five-per cent. alcohol and careful drying is sufficient sterilization, but occasionally when there is reason to suspect infection, the whole syringe, except the washers, should be boiled. The syringe should be kept in a perfectly clean, sterile-covered glass dish or receptacle answering the same purpose. It is a very good plan to have at least two of these instruments always in good working order.

There are several kinds of needles made for dental use, but the Schimmel hypodermic needle has proven best and most practical for use with this system. The Schimmel needle is smaller gauge, longer, more flexible and has a sharper bevel than most others, these differences permitting deeper injection with less pain and offering a more positive handling of the syringe. For attaching this needle to most metal syringes a special butt is needed, which can be purchased from any depot selling the Schimmel needle. The point of a sharp beveled needle is more liable of breakage or being dulled, and should be kept in good condition by occasional use of a fine stone.

The technic of injection is practically the same as used with any local anæsthetic in common use for extraction. Prinz divides injection for dental operations into five divisions—viz.: subperiosteal, peridental, intraosseous, mandibular, and injection into the pulp. As it is the purpose of this writer to deal with novocain and its use in extracting, very briefly, only the subperiosteal division will be dealt with, that being the most successful for general practice and all ordinary cases.

Subperiosteal injection is best started by inserting the needle in the free gum tissue constituting the approximate papilla on the distobuccal side of the tooth to be extracted. The pain of the first puncture may be greatly obviated by lubricating the sharp needle point with carbolated vaseline. Depositing a drop or two of the solution just within the tissue and holding a moment, the rest of the injection may be accomplished without discomfort. The point is slowly forced up under the periosteum of the alveolus, expelling the solution constantly until a point opposite the apex is reached. Here a few drops are injected and the needle held stationary for a moment to allow for some absorption, when it is withdrawn, always depositing some of the anæsthetic on the way. This prevents injection into a vein. The process is repeated on the mesiobuccal side of the tooth. Lingually the injection is started just opposite the middle of the root. These three punctures are sufficient for most of the upper teeth. Occasionally a large difficult first molar requires more. The lower *anteriors* are treated in the same manner, but the lower molars usually require two buccal and two lingual injections to get the desired results. On account of the density of the bone in this region the quantity of solution deposited should be generous and plenty of time allowed for absorption. For the removal of several teeth the needle should be inserted horizontally and a large area infiltrated so as to reach as large a field as possible from each puncture, four or six insertions being necessary for all the teeth of one jaw. In these cases the larger amount of weakened solution spoken of is used. Cases of abscessed teeth or badly diseased gums should not be promised absolute

freedom from pain, but if injection can be made in sound tissue distally to the tooth to be extracted, good results are obtained by this method of blocking the sensory nerves. The elapsed time between injection and operation should be at least five minutes. This is important, and neglect on this point is oftentimes the cause of failure of a painless operation. When infiltration is used, a few minutes longer is required for the anæsthetic to act through the denser tissues. Immediately preceding the operation of extraction the gum tissue should be separated from the tooth or teeth by means of a sharp lance, thus preventing a larger wound than necessary.

In closing, the writer may say that in the last three years he has been using this method almost exclusively for all extracting and has not observed one single case of collapse or even a symptom of any toxic effect. This includes patients of all temperaments and cases requiring extraction of from fifteen to twenty teeth at one sitting, to the number of over one thousand operations.

TO THE DENTIST

By Eugene Payne, M.D., D.D.S., San Francisco, Cal.

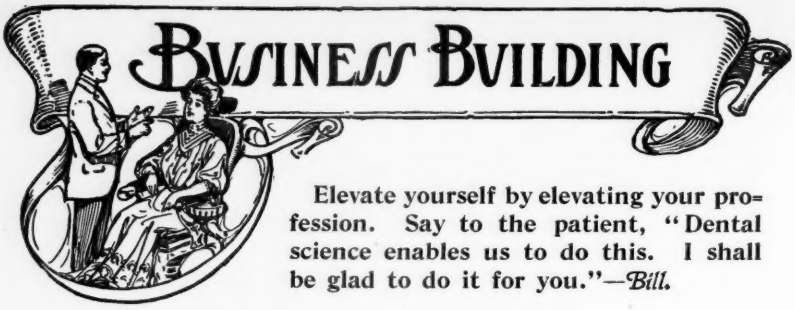
Young mothers should be taught that back of the ten upper and ten lower baby teeth a large molar is cut about the sixth year, four in all, two above and two below, on either side.

That these four teeth are permanent and can be looked for soon after the front four teeth show. That the crowns should be filled as soon as the teeth are fully erupted and before any sign of decay makes its appearance.

Why? For the reason that these four molars are the largest and most important teeth in the mouth; that they are the key to the arch and are most important in the development of other permanent teeth, and for the reason that the loss of a six-year molar is beyond repair, distorting the other permanent teeth so they cannot meet in correct occlusion.

Mothers should also be taught that the six-year molar lower should meet the six-year molar upper with one fourth of its masticating surface in front of the upper molar, and when this does not occur after full or nearly full exposure of the masticating surface, it is time to consult a specialist in regulating teeth for guidance.

Once in proper occlusion the anterior teeth erupt in symmetrical position if no other factor such as mouth breathing is present to displace them.



Elevate yourself by elevating your profession. Say to the patient, "Dental science enables us to do this. I shall be glad to do it for you."—*Bill.*

BUSINESS SIDE OF DENTISTRY*

By Alfred H. Gilbert, D.D.S., San Diego, Cal.

In presenting this series of papers before this Society it is with the hope that it will lead to such serious discussions of this side of our practice, that we may by coöperation place our profession on such a business basis that the people of this city will in a few months be educated to pay for every minute of our time, at a proper valuation, and be perfectly willing to do so.

As there are so many good articles, both in periodical and book form, I have refrained from any personal papers, and will present one or more of these at our meetings, provided that it meets with your approval.

Some of you, no doubt, have read these articles, and if so I beg your indulgence during these particular selections. If you have read them you will be the more able to intelligently discuss them afterwards. Right here let me say that each and every one should discuss these papers from their own standpoint, because it so seriously concerns each and every one of us.

The purpose, principally, is to discuss the question of fees, and compare them with those our medical brethren receive, and also an endeavor to elevate our profession by charging for our services a fee which will have the effect on our patients of paying for service and not for material.

It has been truly said that our services command only the price that we ourselves place on them. No doubt this is a law of nature. For instance, if you buy a pocketknife for fifty cents it matters little whether you use it in the laboratory to cut plaster, nails and so forth; but had you paid five dollars for it you would be mighty particular whether you ruined the edge or broke a blade, etc.; and, gentlemen, the same argument holds good in making a charge for your services.

*Read before the San Diego Dental Society.

Did you ever stop to consider that your patients figure in the same way that you do? They want the very best service that you are capable of performing, but if you have one price for your work—taking amalgam fillings for illustration—and charge them one, one and a half or two dollars for a filling you should have charged five for, your patient follows the same reasoning that you do about your fifty-cent knife, and thinks, well, that did not cost much, I can have one put in any time; and they lose the sense of appreciation of the good work that you are trying to give them.

On the other hand, had you charged them five dollars for the work they would probably put it down in this way: Well, that must have been a particularly fine piece of work; I guess that I will have to take better care of my teeth hereafter. Right here is one of the keys to our inability to get a just fee for our services. It is the lack of appreciation of our work by our patients. Why? Because we do not charge a fee that is in proportion to the good that we do. Here is the educational work that we have to do at present, with our patients. Impress upon them the importance of the work that you are doing for them. In this way only can we ever hope to make any advancement in placing our profession on a higher plane and on a par with the medical fraternity.

One word about small fees. Anyone who undercharges for his services not only lowers the value and appreciation of the work in the patient's eyes, but hinders every dentist in that community from obtaining a proper fee for high-class work.

Let us take a business lesson from our dental depots. In order to get your trade, does the Jas. W. Edwards Co.'s representative say: If you will trade with our house we will undersell the California Dental Supply or the S. S. W. Co., and make it an object to you? Do any of those standard dental depots do business that way? No. And why? Because they do not want to do business with you if you will not pay them the manufacturer's price, a percentage of profit, a percentage on the entire expense of running their business house, such as rent, salaries, light and heat, fire insurance and everything figured as running expense. They know that in that way only can they do a profitable business. They do not cut prices to get your trade, because that would be ruinous. They fight for your business with high-grade goods only, and I'll wager that there is not one man in this room whose average depot bills are not larger with those standard houses than with our little depot in the Granger Building, and all because one gets a far better quality of goods, even though one has to pay more to get them. The point is obvious. Take your lesson from the depots. Don't lower

your fee in order to get patients, for that is ruinous both to yourself as well as your neighbor. Instead, strive for the reputation of being a fine, conscientious dentist, doing your work the best you are capable of, charging a fee that is just to yourself as well as to your patient. In this way you will be far better off in the long run than if you have a large following of low-priced patients.

The hour fee is the only solution of a proper charge, and the most satisfactory to all.

For the sake of illustrating how foolishly and unprofessionally as well as unbusiness-like we charge for our service, let us attempt to place the physician on the business basis of a dentist. What elevating ideas would you have of the medical profession if your physician would say after an examination that he did not make any charge for examination when he did not have to prescribe any pills—in other words, did not have to use any materials? Or, suppose that he charged ten dollars flat rate for every case of measles, typhoid or scarlet fever that he attended, irrespective of how many calls he has to make or how many nights he has to be up with the patient—does he figure that in one case he will only have to see the patient once, which will pay him for the next patient who will take four or five visits? Is there any justice in that manner of charging? Now, do we not act as foolishly as the above two illustrations show when we make no charge for examinations, or charge a flat rate for treating abscessed teeth? Is this not a fatal mistake, and is it not inconsistency itself? Is it any wonder that our patients do not respect our work? The physician is respected because he charges for his knowledge. This, in my opinion, is where we as dentists have failed to uphold the dignity of our branch of the profession.

We have in this Society the finest personnel and the best bunch of fellows who ever gathered together to improve themselves in their profession. I earnestly believe that if we spend a little more time at our meetings, at least for the present, in the serious discussion of the business side of dentistry, we can help each other far beyond the dreams of any one of us.

As a closing word, let me reiterate that only by coöperation and standing shoulder to shoulder in the business relations to one another can we ever hope to gain any benefit for the whole.—*Pacific Dental Gazette.*

Success is the lurking place of failure; but who can call the turn?—Las Tzu, the Chinese Philosopher.

HOW A DENTIST BECAME RICH

Perhaps no one dentist practises all the rules which this contributor contemptuously sets forth, but far too many dentists practise selections from them. The author says they made one dentist rich. I'd rather have my conscience clear and not get rich.—EDITOR.

THROW away your ethical rules; you won't require any.

Trust nobody when you don't trust yourself.

A glaring gold tooth is a daily advertisement.

Never treat an aching tooth; extract it. The more teeth you extract the more work you pile up for the future.

Never fill a large cavity; crown the tooth; you get a larger fee for less work, and no complaints.

Never make a time appointment; then your patients can't disappoint you. Pile them in waiting room like cattle; they'll talk to others about your tremendous practice.

Never permit the opportunity to pass without decrying the ability of your brother practitioner. Of course, it don't pay to do it in the long run, but by that time you've bled everybody of all they have.

Always get a deposit. If you can't get a dollar, take a nickel. Remember, every little bit helps.

Use the same shade and sized tooth on every denture, then you'll have little to remember.

Don't bother with articulation; that's the patient's trouble. Cut every cavity you do fill three times larger inside than out; then if the filling comes out the tooth must break, when you can crown it.

Don't worry if your porcelain crown don't match; it causes talk, and at the same time makes you popular with dummies, who are in reality the ones you cater to most.

PHILADELPHIA.

MAN is in possession of enough information in regard to health topics to insure freedom from most diseases. Perhaps seventy-five per cent. of all deaths are preventable and uncalled for as much as though they had been the result of accident. Knowledge does not mean immunity; most physicians and dentists are busy violating all the rules of health. Thus we go blithely and with song to an early grave and some have life insurance and some have not.—*Dental Dispensary Record,* p. 28, Jan., 1913.

LOCATING THE SHOPPER*

By T. A. Leach, D.D.S., Emporia, Kan.

If all our speakers at dental meetings were as frank, as brief, and as humorous as this author, every seat would be filled at every meeting. More meetings are killed by authors who have nothing to say, and say it with deadly dullness, than by anything else. This man did his duty so cleverly that I'm sure it pleased all who heard him.—Editor.

It is unwise to here explain
The wretched wear and tear of brain
That I have undergone to find
A theme congenial to my mind,
And one from which I could evolve
A problem some one else might solve
And set it out in soulful verse
Like this—it could not be much worse.
But, difficult it is to say
Just how I'll grind it out to-day,
While you, guiltless of so foul a deed,
Yet needs must listen while I read
A poem on this day ground out
With not a thing to write about.
Call it a sonnet or a song,
Know this, at least, it won't be long
And, as a solace to your grief,
I pledge my honor to be brief:
An assurance time will soon reveal
When I am done with this ordeal.
Would I could find the words to say
In tribute to dentistry, 'twould pay
For all the efforts I could make
And all the pains that I might take.
Molders of Inlays—Relievers of pain:
The gratitude of men most sane
Is due in larger measure I'm 'fraid
Than ever is likely to be paid
In this great land where men are free
Or, leastwise, know they ought to be.
There's no profession in our race

* Read before the Lyon County Dental Society, Kansas.

That aids so much to keep the face
From getting twisted out of plumb
As dental work when nicely done.
What the reward of those who strive
To keep the human race alive
And aids earth's sickliest souls to bear
As healthy fruit as anywhere,
Who writes his title as " M.D.,"
And has the nerve to make his fee
As large as he thinks it ought to be.
With us it is the meager few
Who have the nerve to so to do,
And save themselves a competence
For rest and age a few years hence.
But few in money matters strike
A winning pace—most of us hike
Up hills both hard and long to climb,
And go broke more than half the time.
It seems to me I know as well
As anybody here can tell
The many vexing things that strike
The dental profession about alike.
We all have met the son-of-a-gun
Who knows how dental work should be done,
Whose teeth will not a filling hold
Whether made of alloy or cast of gold.
Likewise the fellow who knows it all,
Afflicted with hypertrophied " gall ":
Who broke a false tooth from his set
Eating bread all soaked up wet.
And then the shopper—bless her heart!—
Who from her lucre hates to part,
Who steals your time and smiles away,
Gets your best price and says " Good-day "—
Then there's the man who beats his bill,
Who only pays against his will,
Who knocks to everyone he can
And says you are not worth a—slam.
And thus we have our ups and downs
From overalls to silken gowns;
From those who pay to those who don't,
From those who will to those who won't.

Now this is the problem that I evolve,
A problem, I would, that you might solve:
To know the dead beat on the spot
And do his dental work? I guess not!
To meet the shopper with a smile
And tell her it is not worth while
To banter prices in your place
As you're not running in that race.
Not cut-rate but quality is your aim,
And must be so to keep your name
And reputation with the best
And not be kicked with some of the rest.

AN ANSWER TO "H. B. A."

DEAR BROTHER BILL:

Here is an excellent article right from practical experience. It is worth careful reading by any dentist similarly located, and its suggestions are at least worthy of a fair trial.—EDITOR.

WHILE reading the January number of DENTAL DIGEST I was impressed with the article signed H. B. A. A bond of sympathy immediately sprung up, and with this view in mind I wish to explain a few annoying things that have pestered me since beginning the practice or dentistry.

For four years I have practised according to the old-time methods regarding the business side of dentistry, and to date I am still in debt. I began to feel, as one member of the profession expresses it, "That I was a round peg in a square hole."

I noticed the ad of the DENTAL DIGEST, offering a copy of "Brother Bill's Letters" as a premium. I accepted the offer and in due time the book arrived. I have read it conscientiously from "kiver to kiver," and then reread different chapters and tried at least to digest them. To say the least, they have helped me a great deal. From them I got the following idea:

When you go to your tailor you want to look at a style book to see how the new suit will look; you also want a sample of the goods for inspection to see the quality. When you buy an article of jewelry you want to see the article you intend purchasing. How many suits do you suppose the tailor could sell merely from his description of them—colors, quality, etc.? How many gold watches or diamond rings

could your jeweler sell merely from his telling you how good they are, how many jewels they contain, how made, etc.?

Why, then, should we suppose, or rather propose, to sell our fillings, our plates, and our inlays unless we can show the patient the difference between the various grades and styles? To do this successfully we must have the samples there to show them. Now when I first conceived the idea of selling my services through samples, I could not afford to purchase a sample outfit and case. So I did the best next thing. I mixed up several lumps of plaster of Paris, and from these I carved several teeth, an upper first molar, an upper bicuspid, an upper cuspid lateral and central incisor.

I carved the lowers to correspond. I made these models an inch and a half high and proportionally in other dimensions. Then in these I cut cavities, plain cavities, steep cavities, margins beveled and extension for prevention carried out so as to be easily seen by the patient.

When these were carved I painted them with gold paint, and here I wish to state that I carved all these teeth from plates in "Black's Dental Anatomy," and that by the time I completed the task I had become more proficient than ever in carving cusps, had a better idea of tooth forms, and carving cusps now is a pleasure rather than a burden.

I now selected several teeth from my tooth box and placed in them various kinds of fillings in the best way I possibly could, polished them until you could not find a scratch, and then mounted them in plaster bases neatly carved and gold painted. I also have a full upper and lower articulated denture in vulcanite, a cast aluminum, a Watts metal lower, Eureka suctions, etc., *in situ*.

By thus putting in my odd moments I have used them to profit in many ways, besides securing a sample outfit of little cost and immeasurable assistance.

I have since this divided my patients into two main classes, those who wish to learn and will take the time, and those who do not wish to learn and won't take the time. It has been my experience that the first class greatly exceeds the latter, a fact for which I am thankful.

When a patient comes into the waiting room and requests my services and does not first of all ask the price, I feel that there is a patient who wants to learn and will spend the time. I look over the mouth, make a chart of same, and then by means of my models I explain what I consider best to be done. Then I explain the various ways that dentists use to place amalgam fillings, the time required to properly shape the cavity, etc., and when I have the models in front of

the patient so they can see the points I am trying to explain to them, I find it invariably makes an impression.

Occasionally I find patients that, as soon as I begin to talk, will say, "Oh, I haven't time to stay to-day; I just wanted to get your prices," and then they make preparations for immediate departure. To these I merely say that without giving their case a thorough examination and explanation it would be impossible to arrive at any fixed price; that when they have the time to spend and will call I will be pleased to talk the matter over with them.

This class of patients I do not put much confidence in; if they haven't the time to spend, so that I may be able to explain things to them, then I feel that anything done for such patients would not be appreciated, and unless your services are appreciated you will not derive much benefit from performing them.

To be successful, first of all you must look the part. It is unnecessary to have your office equipment luxurious, but it is necessary to have it scrupulously clean. I cannot afford an assistant, so I do the next best thing. Once a week on a regular day I have a scrub woman come and clean every nook and cranny and everything is put to rights. This costs me fifty cents, and with a little care during the intervening days my office is always clean and neat.

Personally I feel that a graduate of any reputable dental school can do excellent work, but he does not take the time to find out what the different operations cost him and he works too cheaply. Then one day it is difficult for him to meet his supply account, rent, etc., and he wonders why. He finally realizes that he is working too cheaply, but it has taken him so long to find this out that his prices are firmly established and it is practically impossible for him to raise them. The next thing he does is to slight his work—does not polish his amalgam fillings, not quite so particular about his articulations; if a root canal is cleaned with difficulty, he forces some mummifier therein and prays that it won't give trouble, at least until he is far away.

If I were in this condition I would save every cent and deny myself everything to the end that I might have a little capital to change my location, and once in my new location I would wait a month before I would undertake a piece of work at too low a figure to do the best of which I was capable.

C. A. R.

Spraying the Gums.—Try spraying the gums with ethyl chloride around the root of a tooth that you are preparing for a crown.—R. Walter Starr, "Bromell's Practical Dentistry."

EXPERIENCES

Editor DENTAL DIGEST:

IN reply to the article by Wesley Davis, D.D.S., entitled "A Travesty on Professional Intelligence," and your comments as editor on the state of affairs referred to, reciprocity and its solution, will say that the only way to solve that problem is through the National Dental Association getting the several states to pass laws to that effect, or possibly go to Congress for relief.

This clinches the argument in favor of an organized profession, every man if possible in a local society, that local a component of the state, and the state, likewise of the national, then, and only then, will the several members of the dental profession from the various states get what is coming to them.

"The star comes nightly to the sky,
The tidal wave unto the sea,
Nor time nor space, nor deep nor high,
Can keep mine own away from me."

Yours sincerely,
KING S. PERRY, D.D.S.

Editor DENTAL DIGEST:

A LADY patient came to me a few days ago, complaining of the upper right cuspid being very sore. On removing the filling I discovered that the point of a broach had been broken at the apex of the root. It could scarcely be seen, and when touched with the point of an instrument caused severe pain to the patient. I sealed in sulphuric acid and let it remain two days. At the next sitting I drilled around it as much as possible without perforating the root, in hopes I would be able to grasp it with a small pair of pliers or other instrument, but without success. The root is long, as upper cuspids usually are. I have had cases similar to this one, except that the point of the broken broach was not forced through the apex as in this case. How would you remove it without extracting the tooth? I contemplate using the root as an abutment for a bridge and have it already prepared. Any suggestions by you or readers of the DIGEST would be appreciated.

Yours sincerely,
L. M. C.

[It might be practicable, if all other means fail, to anæsthetize the tissues about the apex, enter through the outer alveolar plate, and cut off the projecting portion of the broach. The operation should not be severe and the wound, if kept clean, would soon heal.—EDITOR.]

Editor DENTAL DIGEST:

I WOULD like to say a few words in answer to "W. A. K." in December number of THE DENTAL DIGEST.

The condition he describes is undoubtedly one of those crosses between a vital and putrescent pulp. Oftentimes when an opening of sufficient size into the pulp chamber exists, infection is not forced throughout the pulp at once, which condition is by the way most common, and is the cause of acute odontalgia, followed shortly by pulp gangrene or death *en masse,* but on account of the pulp not being confined, the pulp is able to circumscribe or limit the infection, with the result that the process of destruction is gradual, the pulp being slowly destroyed and converted into pus—beginning with the horn and gradually working toward the apex. On account of the existing opening, the pulp and infection are not confined, so that the pulp is allowed room for swelling, and conditions do not become as acute.

Consequently, there is seldom any history of much if any pain attending this condition, and the process of pulp destruction is very slow, resulting later in a putrescent condition in a part of the pulp chamber, and a vital one in the balance.

A case like this, if sealed with only a mild antiseptic like a devitalizing agent, will at once be followed by acute conditions due to the fact that gases and pus are confined, and infection is very shortly forced throughout the pulp. Formocresol being a very good germicide, and very penetrating, destroys the bacteria present in a very short time, or at least keeps them in check sufficiently to prevent this condition from arising. I have found that a combination of arsenical paste with formocresol in such cases works like a charm, and the patient usually returns with a dead pulp, and no pericementitis, and if the paste contains sufficient cocaine, no history of pain.

Contrary to a very commonly accepted theory that the formalin in this combination would prove extremely painful to a vital pulp, I have failed to find it so. You will probably recall that ammonia will usually stop toothache due to pulpitis, and is very commonly used by the laity for such cases, and there is no denying the irritant properties of this drug.

Just another word. Oftentimes on removing arsenical paste you will find that because of a little vitality still existing in the pulp or else, apical pericementitis, that the pulp could not be removed without a great deal of pain. Try sealing in formocresol in such a case for a week, and see how nicely it finishes up the work.

W. F. K.

ANSWERS TO "SOME PERTINENT QUERIES"

The following questions were asked in the December DIGEST, and in order that our readers may fully understand the answers, those questions have been reproduced.—EDITOR.

1. Tell us, were the average poor men started or did father foot the bills?
2. Did they start right off from college with top-notch prices or gradually raise them?
3. Are they mostly in large cities or suburbs, and if in cities, are they mostly in dentists' office buildings, flats, or private houses; and are they in business or residential neighborhoods?
4. Do most of them do operating alone; and if not, what part of their work does the assistant do?
5. How long do they give credit to their patients, and do they put their accounts in the hands of collection companies for collection?
6. Are they general practitioners or specialists?
7. To what particular point do you attribute their great success over the average practitioner?
8. What is the average time they spend at their work per week?
9. What is the average age of this class of practitioner?

DR. GEORGE CLAPP,

New York City.

Dear Sir: I want to answer from my standpoint the several different questions asked by G. W. C.

I notice some answers in last month's DIGEST, and I think your policy of printing the questions in each issue certainly helps the men who read the answers.

You certainly have wakened up the profession with your business propaganda and I certainly hope you will keep it up. The profession needs it. You can tell by the queries you are getting from time to time that a goodly percentage of the men are paying attention. I believe in going to the fountain head in everything, and I wish you would start a campaign through your journal and try to get the business end of dentistry taken up in the colleges, making each student keep track of his own patients in a thoroughly business-like, bookkeeping manner, charting the mouth and timing himself, and getting a comparative proportion of costs with relation to times of each operation.

Another thing I notice. These dentists in the answers to G. W. C. do not state how long they have been in practice. If this fact were mentioned a man would then know by reading how his own practice was coming up in proportion, or if he was making a substantial increase. I think a man should at least make an increase of a thousand dollars gross every year.

1. He asks if the poor man started or did father foot the bills? The class that I graduated with seemed about half and half. Half worked their way through and the other half on borrowed money.

2. Very few at that time (1899) started at top-notch prices, because the advertising dentists spent thousands of dollars in advertising and educating the people to think that the price of a gold crown was five dollars and a plate from eight to twelve dollars. The result was that when the general public came to the private dentist's office they handed him those prices, and the dentist, having absolutely no training in costs or bookkeeping or any knowledge whatever in overhead expenses, simply took what was offered him, with resultant business chaos up to within three years ago, when the live members of the profession started to waken up, and from these low prices started to raise them in a substantial manner. It is surprising how the dental profession at large has to be told how it will have to raise prices to practically four times what they are now to average with the prices that different manufacturers are asking in other commodities.

3. I would say that the high-priced men are in the cities, and in office buildings and in business neighborhoods.

4. It is a singular fact that it is hard to get competent help in dentistry. In other lines of business, such as banking houses, department stores, etc., you can get reliable help at reasonable prices, but most of the men of the profession do their work alone, with either a good laboratory man or lady assistant, but very few of them have another operator. The assistants do work that the dentist can see is all right before it goes out; in other words, all the work passes through his hands before it is delivered.

5. The matter of credits to their patients. They are adopting a system of looking up any likely looking patients through a mercantile agency, Dun or Bradstreet. All other patients who have no visible backing are charged cash. The prices are told beforehand, the average number of trips estimated, and the patient asked to pay at each sitting. So that if by some unforeseen circumstance the patient should quit halfway, he is paid up to date.

6. Orthodontists average much more than the general practitioner and expenses are much less.

7. The particular point of their success is a simple grasping of the relative cost and overhead expenses of running their business, and nerve to ask the right and proper prices as compared with other business, taking into account the increased cost of living which has been going on for the last ten years. The average time they spend at the office is from nine to five hours, one hour for lunch. As a rule they

do not work on Sunday or the general holidays, and most of them also take a half day off.

8. The average age I would judge to be about forty or forty-five years.

9. According to Dun, the cost of living has gone up 50 to 60 per cent. in the last ten or twelve years, and we all know how dental materials have gone up, and the dentists do not seem to realize that it costs more to conduct their business now than it did ten years ago. The plane of the dentist's office has raised also. The furnishings of a dental office ten years ago cannot be compared with the requirements of to-day. Taking into consideration that the dental practice yields six thousand dollars gross (which should be the practice of a man eight years in the profession) and that it takes fifty cents on the dollar to conduct it and keep it up to date in the manner of improvements, leaves him three thousand dollars net per year. Any practice over six thousand dollars, the returns of profit, of course, are more. In the writer's estimation a dentist ten years in practice should be taking in at least eight thousand gross, and after the expense of keeping up a modern office should have four thousand net. It has been done, is being done, and can be done. For many years we have lain dormant from a business standpoint, but it is to the credit of a few up-to-date men that we are now wakening up.

I understand that Dr. Barber, of Chicago, is giving a series of lectures in "Economics" in different parts of the country. This is a step in the right direction and will help those considerably who have not been educated along these lines. But the writer recommends this course to be installed in the dental colleges throughout the country, so as to enable the young dental practitioner to start off right and not have to wait six or eight years before he finds out that he is not conducting his practice in a business-like manner.

Sincerely yours,

H. J. W.

HANDKERCHIEF A SOURCE OF DISEASE

Dr. Horace B. Blan, who conducts a free clinic for stammering school children in No. 559 West 144th Street, yesterday said he had found unsanitary handkerchiefs largely responsible for the spread of infectious diseases.

The physician advocated that the city supply school children of poorer parents with sanitary handkerchiefs.—*Dental Dispensary Record* (*New York Press*).

My dear Doctor:*

Your inquiry as to why these letters do not go farther and show dentists how to get more patients, reminds me of an experience I had as a small boy. I had grown up in the city, and knew little of country life. So, when I visited my uncle's farm, all was new and interesting. I spent the days as busily as a small boy can, seeing and hearing, and asking numberless questions. I was butted by a cosset lamb, had a foot stepped on by a colt, and fell into the brook trying to catch "shiners." But all these experiences were for a time forgotten in investigating a small, round, gray structure that was suspended from the ground on several plants whose stems passed right through it. It looked a little like a bird's nest. I watched it a long time, but couldn't see any birds come or go, so with a long stick I poked the nest to make the old mother bird come out. Maybe she came. I didn't see her. But a little yellow and black thing lit on my hand right by the stick. And quicker than scat the place where he stood got so hot that I dropped the stick and started for home just as fast as my small legs could carry me. Since then I've forgotten many things. But I've never forgotten what a wasp's nest looks like. And I've never poked another to see the old mother bird come out.

Your suggestion that I take up the subject of getting more dental practice, would be like poking two or three wasps' nests at once, and then standing by to watch the results. You must know that those dentists who regard themselves as our professional leaders, already hold these letters as treading on the very border of quackery. And if I were

* This letter is in answer to one sent to Brother Bill, published in April number, page 157.

to show dentists how to get more practice, I'm afraid some of them would blow up from mere internal pressure.

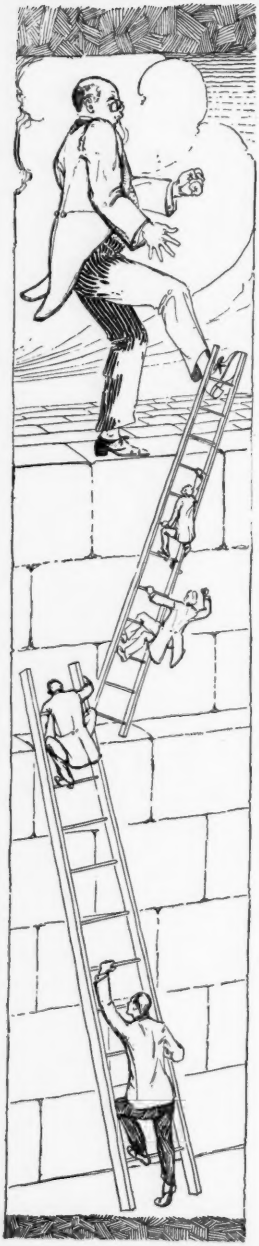
For, here is the strangest thing of all in dentistry.

Before Dr. Chesty gets to be Dr. Chesty, that is, in the days when he is plain Dr. Dentist and is poor and needs practice, he is just as keen on practice-building methods as anyone. He may advertise in the local papers. He may even quote prices and do other things of that sort. In other words, he is out for the money, and he gets it.

"And quicker than scat the place where he stood got so hot that I dropped the stick and started for home just as fast as my small legs would carry me."

He is a smart fellow, or he would stay plain Dr. Dentist. He may not be much of an operator. He may not know a streptococcus from an ichthyosaurus. But he is a business man in a profession. And he practises business-building methods until his practice and cash surplus grow. He raises prices, perhaps improves the quality of his work, ceases newspaper advertising and joins dental societies. In the course of years he grows to love the sound of his own voice and the swelling of his own chest. And then you have the real Dr. Chesty.

It has taken a long time for me to get to the strange part of his history, but here it is. No sooner does he climb the ladder of success than he kicks that ladder down. And he tries to kick it so far down that he'll for-



"He knocks down the ladder by which he climbed."

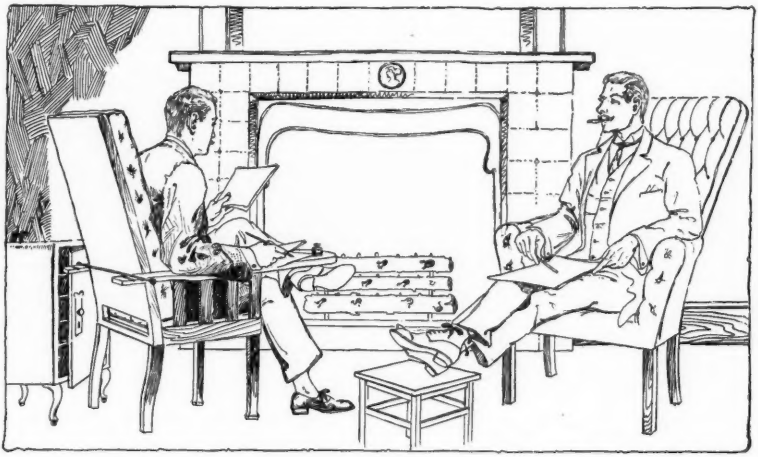
get he ever climbed by it. And if he sees anybody else trying to climb by the same ladder, he swells all up, puts on his severest expression, denounces all such methods, and seeks to turn the climber's attention to methods by which very few have gotten very far.

I don't mind the knocks personally. I've had so many handed to me by adverse fortune that I can smile at any that Dr. Chesty may be able to deal. But a number of dentists are developing the courage to practise business methods, and I don't want to scare them out. Only yesterday I received a letter that did me good. A certain dentist wrote, "I've been Brother Billing it for some years now. I'm keeping two boys in college with my increased revenue. If it were not for what you've written I couldn't do it." That gave me great pleasure. I've thought of it a good many times since I read the letter. I hope to see those boys some day. Anyway, I'm glad I helped with their education. But if I'd started in too strong and it had antagonized the father before he got really into the practice of business principles, he would not have adopted them, wouldn't have the money, and the boys wouldn't be in college.

There's nothing I'd like better than to write on the subject of how to get more practice, but I'll tell you frankly I'm afraid. Here's why. My small son has reached the investigating age. And the other day when we were testing the batteries in the car, he picked up the ammeter and began investigating its possibilities. We were suddenly startled by a bright flash and a scream. We found that the boy had inserted the plug of the ammeter in the electric-light socket, had made a short circuit, got the flash and a small burn, and had learned something he will never forget.

Now if I were to write here suggestions on business building a good many dentists would use them about as intelligently as my boy used the ammeter. Not only would they burn themselves, but they'd do the cause of dentistry and ethics in dentistry (and I'm the strongest kind of believer in the right sort of ethics) more harm than good.

Did you ever pause to consider how many causes are injured or ruined by their fool friends? From religion to woman suffrage, it's the fool friends that do the damage. Few intelligent people deny the power and value of the influence of Jesus Christ. But He has so many fool friends and they make people so sore, that a great many people will have nothing to do with religion. And yet, if we could have Christ's friends really living His life, if every man was honest and kind, and every woman good, we'd have a converted world in thirty days. It isn't Christ who keeps it back. It isn't even His enemies. It's His fool friends.



"And I'm sure it wouldn't be long till we had out pencils and paper and had drafted a line of little books."

And those woman suffragists in England, the fool friends of the cause! They say there is a time when even a worm will turn, and when they go to messing up the putting greens of my favorite game, I'm ready to turn. I'd like to make them lick off the green paint they poured on the letters and replant each separate spear of grass on those greens.

And in dentistry the fool friends of good business principles would have us all by the ears. If you were to suggest to six dentists in Dental-

ville, that they are not competitors but co-workers, and that there is more dentistry needed within ten miles of them than they can supply in all their lives; and that they get together in an intelligent plan to educate the public as to the possibilities and its needs, Dr. Smarty wouldn't wait till he could coöperate with the rest, but would rush off to the newspaper office, contract for six inches, double-column, top-of-column, next-to-reading-matter, and would announce, "You need teeth to keep you well. Let me make them. I'll do it cheaper and better than all these other fellows." And he'd not only do the other dentists no good, but he might set back the cause of good dentistry in that community ten years. And I don't want to help that sort of a dentist, except to help him keep still or to get out of the profession.

If we could stop the eyes and ears of all the fool friends of business principles in dentistry, we could work a revolution and live to see it succeed. For no one objects to the dentist making a proper net return for his labor and skill, and making such use of his earnings as shall leave him independent in old age. Indeed, such a course is most beneficial to the community. If every individual could do that, we should have no poverty, no old-age homes and few real failures in life.

If I could have you here for an evening before my gas log, where we could smoke and talk with no danger of being misunderstood, I'd confess to you that the public is much like a person who needs something but doesn't know what it is—and we know that thing to be dentistry. It needs to be kept well, to be protected against tuberculosis, pneumonia, anemia, indigestion, early breakdown, etc. And we know that if we can catch that public young, and see that it has properly formed noses and properly placed sound teeth, we can pretty nearly guarantee immunity from these diseases and many others.

And we should confess to each other that the more of this information was imparted to the public in proper ways (and by proper ways I mean ways that uplift the service rather than him who serves, and that lets the dentist draw his dignity from the worth of his service rather than the service take its measure from him) the better it would be for the public, and the more service of that kind we should get chances to render. And we'd agree, I'm sure, that sometime in the future, dental societies will see this opportunity and embrace it in a formal and dignified way, but that you and I could embrace it in a fraction of the time, in a perfectly legitimate and dignified way, and that we could educate half a generation of our local public before the dental society started.

And I'm sure it wouldn't be long till we had out pencils and paper and had drafted a line of little books which should tell to our public,

in plain terms, just what it means for the child not to be able to breathe and chew correctly and keep the mouth clean; what it means to the youth to breathe through the mouth, with catarrh of the pharynx as a result and the entrances of the Eustachian tube closed and the ears dulled in hearing, with hopeless deafness as a possible outcome. And then we'd go on through the necessity of teeth for the adult in order that he might maintain his vigor through the working years, until we had a complete line of information-giving books that would do the community a lot of good, and ourselves too.

I'm sure we shouldn't have gone very far till we discovered that the proposition was too big for us to be selfish about and that there were some pretty decent fellows practising dentistry right near us who'd be glad to help in the work of educating the whole community. We'd remember Dr. Speech in the next town, who is a very good talker before an audience, and after a little while we'd arrange with him to come over and talk to some of our public if we'd go over there and talk to some of his.

And so, in many ways, we'd educate our entire community to better dentistry. We'd get more patronage, and if our skill permitted us to do better operations, our business ability would enable us to get remunerative fees for them.

And thus in a dozen ways we'd have ever before the public the right sort of publicity, with merely a note to the fact that we were glad to offer this form of service, or merely our cards as enclosures.

I believe that any good dentist, in any moderate-sized community of prosperous people, can have all the practice he can handle. And I think he can build it so to suit him that in a few years he can pick and choose about as he likes.

But don't tell any of the fool friends of the cause, or you'll spoil it all.

Bill

THERE'S a spot on most men which can be tickled—the few who lack it are just plain, hard-shelled turtles. The more we rub sides with the world the more delicate the sense of touch should become. Sure, there'll be some blisters, but let's keep the callouses pared down to tickling thinness.—*Exchange.*

PRACTICAL HINTS

[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to him.]*

WATER FOR ARKANSAS STONE.—Water used on the Arkansas stone when sharpening instruments is just as efficient as oil and more cleanly.—*Dental Brief.*

TO LIGHT AN ALCOHOL LAMP.—When you are caught without a match handy, your electric cautery makes a good one, especially to light the alcohol lamp.—J. FRANK NELSON, D.D.S., Superior, Neb.

THE USE OF A CATARACT KNIFE FOR OPENING AN ALVEOLAR ABSCESS.—A cataract knife is the finest instrument I have found for opening an alveolar abscess. The point is so sharp and delicate that its insertion is practically painless compared with knives in general use for this purpose.—FLOYD E. CLINITE, D.D.S., Redfield, S. Dak.

REMOVING COTTON TIGHTLY WEDGED.—It has been my experience that cotton wedged tightly in root canals can be removed by a few revolutions of a Downie or Kerr broach reamer in the handpiece, withdrawing it the moment it comes in contact with the impacted cotton.—K. K. CROSS, D.D.S., Denver, Colo.

TO MAKE INVERTED CONE BURS FROM THE OLD ONES.—Very good inverted cone burs can be made from old ones by placing the base flat against a fine stone on the lathe and grinding them down slightly. This reduces the size a little and takes the blades off the base of the cone, but produces a cutting surface that gives good service in many places.—J. FRANK NELSON, D.D.S., Superior, Neb.

REPLACING A TOOTH IN A VULCANITE DENTURE.—If a plate has a fair amount of rubber, a tooth is selected, a space dovetailed, making undercuts as for a filling, the tooth is put in position, and held with the left hand. A wax spatula is heated over a Bunsen burner, and

***In order to make this department as live, entertaining and helpful as possible, questions and answers, as well as hints of a practical nature, are solicited.**

some low-fusing alloy—one that will melt in boiling water and is used for dies—is melted and with a pointed, hot spatula forced into the cavity, and polished at once. I have had repairs made in this way hold for two years, and probably longer. They will hold if the vulcanite is of sufficient thickness, and with a little experience require very little time.—G. H. Henderson, *Pacific Dental Gazette.*

Removing Broken Crown Posts.*—Take S. S. White trephine No. 253, trephine around the post into end of root to sufficient depth. Take an ordinary screw mandrel and reduce the shoulder on the lathe to diameter of the shank, shorten the mandrel to one half inch and flatten the sides, so that it can be grasped with the pliers, which gives a small steel mandrel which, forced over the post, will cut a thread as it goes down. Screw it down firmly, and grasping the mandrel with the post puller, remove the broken post.—C. Clifford Stone, D.D.S., Romeo, Mich., *The Dental Summary.*

Removing Plaster from a Vulcanite Denture.—Now and again a thin coat of plaster on the palatal surface or between the teeth of a vulcanite denture proves difficult of removal, especially if the case is not promptly removed from the flask after vulcanizing. The denture is placed for a few minutes in a cold mixture of about equal parts of sulphuric acid and water, or the "pickle pot"; no injury is done to the denture, while the plaster is softened or dissolves, so that a little work with a brush wheel leaves it clean.—W. H. Trueman, *The Dental Brief.*

The Restoration of Badly Broken-down Roots with Amalgam.—This is a restoration of badly broken-down roots and molars by means of amalgam, using ordinary flat head brass screws, which may be purchased at any hardware store, for retention. The screw is cemented into the root and amalgam packed about same, with or without matrix as preferred or accustomed, and contoured. By this means roots decayed below the gum margin may be restored to such an extent that roots may be used for bridge abutments. The idea in using the brass screw is from the fact that the brass is not attacked by the mercury in the amalgam. This method is especially valuable in cases of lower molars, the screw being inserted into the distal root. Nos. 0 and 1 are most convenient sizes, length of about $\frac{3}{8}$ to $\frac{1}{2}$ inch, to suit the requirements.—J. R. Weimer, D.D.S., Wooster, Ohio, *The Dental Summary.*

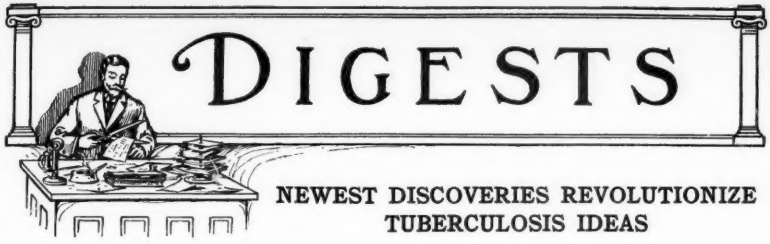
* Clinic at Michigan State Dental Society, 1912.

Cast Cusp Crown.*—Prepare root in proper manner, cut a piece of 22-k. gold large enough to make the band, wide enough to include cusps, fit the band to root and trim to occlusion. Contour the band with pliers to form the cusps. Place warm inlay wax, or, better still, Alexander's gold, inside the band, condense same or trim and carve (if wax) to occlusion. If wax, invest and cast; if Alexander's gold, place solder on cusp of crown, place over Bunsen burner, burn out wax and sweat solder in the gold. Polish the crown and cement it on at the same sitting.—C. E. White, Indianapolis, Ind., *The Dental Summary.*

Wax Inlay Pattern.—There are two methods of procedure after the cavity is ready. One by making a wax pattern directly in the cavity and the other by taking an impression of the cavity in modeling compound and making a die of amalgam in which the wax pattern for the inlay is made. There are advantages in both methods and sometimes one can be used more successfully than the other. The wax should be of sufficient hardness to break rather than to bend when chilled and yet soft enough to be moldable when warmed. Waxes of different degrees of hardness can be used to advantage in certain cases. In a deep proximo-occlusal cavity in a bicuspid or molar it is difficult to get the wax to place at the first pressure. This being a hard wax a softer wax can be added to the part by drying the surface and flowing it on where needed. The wax of harder consistency will act as a plunger to press the other to place and aid greatly in difficult cases. —E. D. Coolidge, D.D.S., Chicago, *The Dental Review.*

The Use of Cement with Amalgam.—Experiments with amalgam in cavities so made that the fillings when completed could be removed without destroying any part of the cavity surface show that it is extremely difficult to fill a cavity with amalgam that will seal the margins and stop decay. Therefore I consider it good practice to use soft cement in every cavity to be filled with amalgam. I use just enough to cover the cavity surface, removing any surplus with an instrument before starting to use the amalgam; then begin with the amalgam and be extremely careful to pack well; you need not be alarmed at the cement that oozes out at the margins of cavity as it may be removed and the mixture does no harm. This method in my practice gives good service, and amalgam fillings may be made that no man need be ashamed of.—Frank J. Ryan, Chicago, Ill., *The Dental Review.*

* Clinic at Indiana State Dental Society, 1912.



NEWEST DISCOVERIES REVOLUTIONIZE TUBERCULOSIS IDEAS

(*Reprinted from the New York Times, February* 2, 1913.)*

(*Concluded.*)

A TOTAL destruction of our immunity is exceedingly rare. The bacilli have to fight for every inch of ground, the system stubbornly resists them and confines them to very limited areas. So slow is their advance that many months or years may elapse before the bacilli have multiplied sufficiently to poison the patient and produce symptoms of an active process. A much longer period may elapse before we even suspect disease. The bacilli are found in the sputum only in a comparatively advanced stage. Typhoid fever comes nearer to destroying immunity completely than any other infection. So promptly does the tuberculosis occasionally appear after typhoid, one disease running into the other, that physicians were in doubt as to whether the first diagnosis was correct. We now know better, the two diseases having very little in common, and are rarely mistaken for each other. These cases are really typhoid, and start up the tuberculosis so promptly that one appears to be merely a continuation of the other.

We are now in a position to explain that curious phenomenon called Hazen's Law. When a community suffers from typhoid fever, due to a contaminated water supply, it also has a high tuberculosis death rate. Mr. Hazen discovered that when the water supply was purified, not only was the typhoid death rate decreased, but the deaths from tuberculosis and various other diseases also. It is now evident that in the period of bad water many people died of tuberculosis simply because their latent foci became active from the destruction of their immunity by typhoid infection. The action is very powerful, and Dr. Spooner of Boston has recently shown that even the small amounts of the typhoid poison, used in the modern methods of prophylaxis, will make active any chronic or latent disease, and he warns particularly against performing the operation on those who show signs of an active tuberculosis.

We are therefore safe in asserting that the bad water supplies so

* This important article was written by one of the best-known experts in this country, who stipulates that it be used anonymously.—*The New York Times.*

common in cities one hundred years ago were largely, if not entirely, responsible for the dreadful tuberculosis mortality of those times.

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With the exception of typhoid fever here and there, all the infections are sporadic cases or confined to a very few contacts. It is quite evident that sanitation has been the real cause of this long-continued decrease in the tuberculosis death rate, for there have been fewer and fewer infectious diseases to bring out the latent tuberculosis existing in everybody. This is also illustrated in the neighborhood of every modern sanatorium where the number of cases of consumption diminishes in spite of the great increase in the number of consumptive visitors. The inhabitants learn how to live, and they thus avoid all those things which destroy their own immunity. Nurses and attendants in sanatoriums, for the same reason, also develop fewer cases than people of their ages elsewhere. Although they are constantly handling bacilli of the most virulent strains, they are never infected thereby. If they do become actively tubercular it is because they have been living improperly and their own foci have spread.

The real anti-tuberculosis crusade is that directed against everything which injures us. Sanitation, by preserving us from other infections, has done infinitely more to prevent consumption than all the restrictions ever placed around the consumptives themselves. Hygienic living, by keeping the general health up to the maximum, not only strengthens our own immunity, but also helps us resist other infections should we happen to come in contact with them.

For some reason which no one has been able to explain we have never become adjusted to house life. We are outdoor animals now almost to the same extent as we were 10,000 years ago, when we sought shelter under overhanging rocks and in caves. A few peoples, through a severe mortality and the survival of the fittest, have developed something of adaptation to house life. Asiatics and Hebrews can live in confined spaces to an extent which would be quickly fatal to the Baltic type of man, who must inhabit open spaces or die of tuberculosis. Even the Jews and the Asiatics melt away from consumption if they crowd together too much. Outdoor life means that it should be in an appropriate climate. We have not the remotest suspicion as to why northern man actually needs cold air for the most part of every year. We must be content with the knowledge that he does need it to keep well or to recover from any infection—from pneumonia and typhoid fever to tuberculosis.

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This is not the place for a work on tuberculosis, but it must be said

in passing that the chief cause, after the infections, is defective nutrition, and as long as people will persist in multiplying beyond the earth's capacity for producing food some must go without enough and lose their immunity. That is, there is an irreducible minimum below which the tuberculosis death rate cannot be lowered. Poverty is the ultimate cause, and no one as yet has found a way of lifting the whole human race out of want. Negroes in slavery were well fed and had little tuberculosis, but now are dreadful sufferers, chiefly from lack of nutrition due to their poverty, and it seems irremediable.

A study of some of our colonial genealogies shows that consumption was practically unknown. People had ample food, warm clothing, lived mostly outdoors, and their habitations were well-ventilated log houses without stoves. There were eight to twenty children per family, and nearly all grew up to have large families themselves. A change came with the new overheated houses and iron stoves of the more prosperous nineteenth century, for at that time we find frequent mention of tuberculosis. It is probable that overcrowding, poor food, and typhoid fever, as well as overheated houses, were all factors in this sudden outbreak of consumption in America.

Since then the number who lose their immunity has been steadily diminishing, as in Great Britain. The same phenomenon is seen in monkeys which die of tuberculosis in hot houses, but survive outdoors, even in cold climates.

All this does not mean that a consumptive is a perfectly harmless individual, who may be permitted to expectorate where he pleases. There is such a thing as phthisiophobia on the part of the adults who cannot be any more infected than they are already, though they do not know it. The purpose of this paper is to warn against the other extreme, like the Cubans who objected to vaccination on the ground that smallpox never killed anyone except babies. The consumptive may not hurt us, but he surely will kill an infant to whom he transmits too many of his germs directly. To be sure, the infant's safety for life depends upon its early vaccination; it must receive small doses of attenuated bacilli indirectly from the things it puts in its mouth. But there are enough unrecognized cases spreading the germs for this purpose, and the babies will never lack opportunities of getting them.

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The anti-tuberculosis crusade must continue its present methods while inaugurating a new and main branch of the work to educate people in sanitation and hygiene with the sole view of advancing everyone's immunity to the point of resisting his own tuberculosis throughout life. This is not an impossible task among those able to earn proper

food. The inefficients, of course, are beyond hope unless supported throughout life, and there may not be enough food to do that. The outlook is not so bad when we consider that, in spite of all adversities, seven eighths of us retain our immunity, and it could be easily made nine tenths now. One tenth seems destined to be submerged below the poverty line. The outlook is made still brighter by the knowledge we have long possessed, that nearly all of the five sixths or seven eighths who die of other causes show evidence in postmortem that at some period of their lives something happened to them which permitted their tuberculosis temporarily to spread, and that they recovered, never knowing of the danger they had been in, though the telltale scars remained. Less than ten per cent. of humanity go through life in such a perfect condition of health that their tuberculosis is kept in subjection. The ideal we are striving for is to make the whole self-supporting population do the same, and help the submerged tenth as much as we can. Figures show that we are rapidly approaching our ideal. There is some indirect evidence that in the beginning of house life only the infants died of tuberculosis, but now most of the deaths are between eighteen and forty-five years of age. That is, with improvement in ways of living, we are resisting our hidden enemy more and more. The increasing number of men who die of tuberculosis in old age is really a cause of rejoicing, for they have resisted the enemy for seventy years. One fourth of all old people die of pneumonia, after having carried the germs around with them for eighty or ninety years.

In time tuberculosis, like pneumonia and Bright's disease, will merely be one of the ways of dying when we are worn out through fair wear and tear. The average age of those dying of tuberculosis is constantly increasing, and that is the real test of the way we are winning the fight.

The new sermon to preach to the people is that everyone is tuberculous from infancy, and that every harmful thing may make him consumptive without further infection. The hidden enemy is really a friend vaccinating us against harm. We need have no fear of consumption if we lead a hygienic, upright, and industrious life. Hygiene includes plenty of time outdoors and the avoidance of all excesses of light, heat, alcohol, and exercise, but taking a generous amount of nourishing food.

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Every sanitarian and every well-wisher of humanity earnestly hopes that the new facts will be so amply verified in America that every layman will learn that he is tuberculous, but that the process will never become active so long as he behaves himself and obeys the well-proved laws of hygiene and sanitation.

IN WHICH THE QUESTIONS OF THE FARM ARE MOOTED AND DR. HURTY GETS "NAILED."

EATON, IND.

DEAR DR. CLAPP:

INCLOSED find clipping. This Dutchman has one on the dentist; he knows how to figure. Yours truly,

F. A. W.

VALUE OF MEAT

To the Editor of THE STAR:

Dear Sir: In your "Views of Farmers" column in the issue of January 20th, I notice an article on the high cost of living that was contributed by a Mr. Minnemeyer. The author of the article is very much in ignorance of the subject upon which he writes or has been wrongly informed.

In regard to his remarks on the meat business, I must say that he needs enlightenment. There are but sixteen to twenty pounds of 25-cent meat in an animal weighing from 800 to 1,000 pounds. An animal that has been slaughtered will lose fully one-half the gross weight. Now, if I pay 7 cents per pound for this beef on the hoof and it weighs 1,000 pounds, I have to cut $70 out of 500 pounds.

For the porterhouse steak I get 25 cents per pound; loin and round steaks, 20 cents per pound; roast beef ribs, 15 cents a pound; chuck roast, 15 cents a pound. For my brisket boiling beef I get 8 cents a pound; plate boiling meat, 10 cents a pound; neck, 10 and 12½ cents; sticking piece, 15 cents. Now I have four heavy soup bones from this beef that weigh from ten to twelve pounds, and I do well to get an average of 2 cents a pound for them. The hide will bring me a little more than first cost and the tallow less than first cost per pound.

I also notice that the author of Monday's article says a man killed ten 200-pound hogs and procured 2,000 pounds of meat from them, not to mention the lard. Impossible. A prime hog loses one-fifth of its gross weight and often one-fourth.

Now, if the readers of this will but stop to think that out of his profits the butcher must pay his help, keep up his tools and shop, pay ice and coal bills, keep a horse or two and provide for them and the stock he has on hand for slaughter, he will see that the butcher has small chance of ever being called before the Pujo Commission.

I have been engaged in the butcher business for thirty-five years and I should know whereof I speak.

JACOB MYERS.

CAMBRIDGE CITY, IND.

THE COST OF DENTAL GOODS

By W. J. Brady, D.D.S., Kansas City, Mo.

I'm glad to see this article. I've been through the plants of several dental manufacturers and have seen the patience and skill employed to produce better and better results. Some of them are doing work that fills the beholder with admiration.

Don't fail to read the last part of this article. The more you make it cost to sell you goods, the more you must pay.—Editor.

It is believed by most dentists that next to diamonds and millinery, dental goods are the most expensive things to be found. It is true that dental goods cost considerable money, but most of the high-priced ones —especially those of mechanical nature—are not high-priced at all, but actually cheap. The real cost of an article depends on what is received for the money paid out, not just the amount it takes to buy it. Therefore we repeat that most of the expensive dental goods are cheap, even if they are costly.

There are three things that make dental goods cost money: their superlative quality, the comparatively small number of buyers, and the carelessness of dentists in both buying and paying for their supplies. But few realize the superior quality of dental goods. It is a very mild statement to say they are surpassed by very few manufactures; to say they are not equaled or even approached in quality is nearer the truth. This can only be fully appreciated by being compelled to buy and use the tools and materials offered in other lines. A real comparison is a revelation.

Compare, for instance, an automobile engine with a modern dental chair of the best make. The great exactness of the engine is loudly advertised by the manufacturer; "every part made to within one one-thousandth of an inch of exact size." Sounds like pretty fine work. Yet among good mechanics one-thousandth of an inch is considered a rather coarse measure, and in the dental chair there are parts ground to within one five-thousandth of an inch. And when it comes to hand-pieces, one ten-thousandth of an inch is all the variation allowed from standard size. There is as much machine work on a dental chair as on a four-cylinder engine, and the chair is made with greater exactness, yet the chair sells for less money than a good engine.

An ordinary screw-cutting lathe with the necessary chucks for the usual run of work costs from $90 to $125. Yet it takes less than half the work and material to build the lathe than a dental chair, and the exactness of the lathe is much less. A precision lathe is about

the only piece of machinery that ranks with a dental chair in exactness and amount of work to build; the precision lathe costs from $300 to $400, with ordinary equipment. To fit up a machine shop with precision machinery equal in variety and quantity to a well-equipped dental office would cost nearly three times the money, and the quality of product would not be one particle better.

Outside of precision lathes and such machinery, the quality of dental goods is not equaled at any price. Automatic screw machines, milling machines, and turret lathes—all fine things—are built bigger than dental machines, but they are merely bigger, and not better. The exactness of manufacture of these things does not begin to compare with chairs, dental engines, or hand-pieces. And when it comes to electric motors for dental lathes or engines, with their instantaneous stop, start, and reverse, and their silence and smooth running, and excellence and completeness of all equipment, there isn't another thing made in the entire line of electrical manufacture to be classed with dental electric goods. Such goods can't be bought elsewhere at any price, for they simply are not made.

It would naturally be supposed that jewelers' and watchmakers' lathes are about as exact bits of machinery as can be built. They *are* exact, but not more exact than dental hand-pieces, and many of the imported lathes not so good either in finish or temper as the ordinary hand-piece. And they wear out faster than a good hand-piece, for they are not so carefully tempered. When it comes to the thousand and one little tools that look so fascinating spread out all over the watchmaker's bench, none of them have the quality of steel nor finish of excavators or pluggers. In fact, steel goods of the temper and quality of dentists' hand instruments are not made in jewelers' and watchmakers' lines.

When it comes to burs, no such instruments are made outside of dental supplies. Small twist drills and milling cutters for jewelers' lathes come the nearest in size and exactness of manufacture, but the quality is so inferior to a good dental bur that comparison is laughable. Yet the price is higher than for the burs. Think of getting burs with blades cut mathematically exact, each blade at a carefully calculated angle, and each exactly the same height, the edges sharp as a razor, and hard enough to cut steel, and yet so nicely tempered that breakage is almost *nil*, and the shanks all within one five-thousandth of an inch of the same size, all for a dollar a dozen. Similarly shaped cutters are made for milling machines, only larger—which means they are much easier to make—yet the cheapest of these is nearly a dollar apiece.

And so with many other steel goods—forceps, contouring pliers,

rubber-dam punches, automatic pluggers, broaches, clamps, separators, etc.—goods of equal quality are not made outside of dental supplies. Surgical goods are a good example; surgical knives are often "pot-metal"—will not hold an edge at all; forceps bend or break on the first hard usage, saws supposed to be the finest possible are inferior to a good carpenter's saw. Example after example in numerous lines of goods might be cited, all showing inferior temper, finish, or wearing qualities, as compared with dental goods, and nearly all at higher prices.

Dental furniture is no exception to the rule. There is no work put out superior to that of the American Cabinet Company, even in the finest bank fixtures, or most exquisite house or office furniture. Compare the finest roll-top desk you ever saw with a fine dental cabinet with all its numerous smooth-sliding drawers, these with their partitions, compartments, and various receptacles, all finished just as smooth and nice inside as outside. Note the amount of work put on the cabinet to make all these; see how every edge is smoothed down, every corner rounded, every place finished. Compare the wood, either solid mahogany or selected oak; the dental cabinet is the equal of the finest. Then compare the price. The dental cabinet, with equal wood, superior workmanship, and lots more of it, isn't so high after all! For any solid mahogany roll-top, or quartered-oak buffet, or even a fine dining table, will cost as much as the cabinet, and the amount of work on the cabinet is probably three times that of the other, too.

Dental goods of quality can never be sold for little money. They cost money, because it takes money to make them; and while they are expensive, they are at the same time cheap. Let us be glad that a "competition for excellence of product rather than cheapness of price"—to reverse Josiah Wedgewood's famous remark—still characterizes our best manufacturers, and we hope it will never be otherwise. And let dentists congratulate themselves that they are able to buy better things than any other profession, without exception. While the high quality of dental goods makes them costly, inferior quality makes them still more costly.

Superior quality accounts for most of the cost of dental goods, yet the limited number of buyers also helps keep the cost up. There are approximately 35,000 dentists in the United States, and about 50,000 in the world. Therefore, a dental manufacturer knows he cannot exceed this number of customers at the utmost, while many other manufacturers have the possibility of millions of customers. This limited capacity necessarily adds to the cost of dental supplies, for the laborer is always worthy of his hire. Goods must be sold at a profit, or they will not be produced.

There is another element of cost, however, that rests directly with the dentists themselves. Professional men are notoriously negligent of their financial affairs, and while dentists are no worse than the rest —and possibly not so bad as some—yet this disregard of finances makes their dental goods cost them many a pretty penny extra. This does not apply to all, of course, for there are dentists who are good business men as well as good dentists; these make a neat little saving of about thirty-three and a third per cent. annually on their dental goods, all by the simple process of applying ordinary business methods to the buying and paying for the same.

It is an axiom of business that the small buyer and the slow payer always pay the long price. The cost of doing business is proportionately greater in small lots than large, all of which is and must be added to the cost of the goods. Most dentists disregard this long-established business feature entirely, and string their buying out into many small purchases, where they might easily make a few large purchases and get a much better rate.

It is the quantity purchased that lowers the cost. And the quantity rate is always as advantageous to the seller as to the buyer—there wouldn't be any quantity rate unless it was. Dental dealers offer a saving of about ten per cent. on really moderate quantity purchases, and this discount is certainly worth looking into. Few investments can be made to net this much and still be safe. It is safe to say no good buyer in other lines would overlook such an attractive discount, yet many dentists do, when they could just as easily bunch their orders and make money. Many a dentist grabs at a mining stock or oil well proposition that only *promises* ten per cent., and then neglects a perfectly safe thing in his own business that *pays* ten per cent.

When the deposit-in-advance method is used, the cost of goods is still further reduced, and this method is just as safe as putting the money into the First National. There has never been an instance where a dentist has lost his money by this plan. It is conservatively estimated that the ordinary practitioner will "turn his money" three times a year in this way, and his savings will amount to fully thirty-three and a third per cent. annually on his investment. What other proposition offers anything like this! And with safety, too.

When the extraordinary quality and limited sales of dental goods are considered, the cost is really small. And when these savings are available by the mere process of using ordinary business sagacity in buying, and following established business procedure in paying the bills, there can be no reason for howling over the cost of dental goods. —*Western Dental Journal.*

BOOK REVIEWS

DENTAL LECTURES. TWO HELPFUL TALKS ON DENTAL HYGIENE. COLLABORATION OF MR. C. R. SALMONS, R. M. BENNETT, D.D.S., and W. H. BENTLEY, D.D.S. Copyright, 1912.

About the most unrighteous thing a reviewer can do is to say right out and out that any firm engaged in making money has done a good thing, and then name the firm. But that's just what I'm going to do here. And the firm is welcome to any unpaid-for advertising that may result.

Quite a long time ago Mr. C. R. Salmons, representing Colgate & Co., called on me in the search for information as to how to lecture to children about keeping their mouths clean. You may say at once, "Oh, yes, he wanted to go before the classes and talk about Colgate's tooth preparations!"

Well, he didn't want anything of the sort. He made up a mighty good lecture about the advantages of caring for the teeth. He adapted it to the interest and intelligence of children in the lowest school grades. And he delivered it in such way that broad-minded educators were pleased and asked him to return year after year. It was what we should call a strictly professional lecture.

Now Mr. Salmons and Drs. Bennett and Bentley have collaborated and published a little book, entitled "Dental Lectures." It contains one lecture for very small children and one lecture for older ones. And both are excellent.

Copies of this booklet can be had by addressing the authors, care of P. O. Box 645, New York City. If you are engaged in instructing children, particularly in that difficult task of instructing young children, you will find this book right to the point.

G. W. C.

FOOD TALKS WITH THE CHILDREN. BY JOHN S. ENGS, D.D.S., Oakland, Cal. Copyright, 1912.

This very readable little book is evidently intended for children from ten years of age and upward. Younger children would require that it be read to them.

It contains much valuable information for parents as well as children. And its advice, if followed, will prove beneficial.

Dr. Engs has very wisely stuck to one subject in this book. There is not the slightest sign of wandering from the text. He has also a very happy gift of writing facts entertainingly.

G. W. C.

DENTAL LAWS CONDENSED. A BRIEF GUIDE TO THE REQUIREMENTS OF DENTAL EXAMINERS FROM APPLICANTS FOR A LICENSE TO PRACTISE DENTISTRY IN THE UNITED STATES OF AMERICA AND ISLAND POSSESSIONS, CANADA AND THE PROVINCES, ALSO THE LEADING CIVILIZED COUNTRIES THROUGHOUT THE WORLD. BY ALPHONSO IRWIN, D.D.S., Camden, N. J., Member the American Medical Association, the National Dental Association, the New Jersey State Dental Society, Southern Dental Society of N. J., the National Board of Dental Examiners, and the New Jersey State Board of Registration and Examination in Dentistry, 1912.

To every dentist interested in the State Dental Laws in force in the various states, territories, dependencies, etc., and in practically all foreign countries where the practice of dentistry is regulated by law, "Dental Laws Condensed," by Alphonso Irwin, D.D.S., will be valuable.

This book gives in condensed form the requirements of Dental Examiners from applicants for a license to practise dentistry.

This book is the first attempt to present legal dental requirements throughout the world in a systematic manner. The information is obtained from official sources of the most reliable character and of recent date.

SOCIETY AND OTHER NOTES

Officers of Societies are invited to make announcements here of meetings and other events of interest.

ARKANSAS.

The next meeting of the Arkansas State Board of Dental Examiners will be held in Little Rock, Arkansas, April 7 and 8, 1913. For application blanks apply to E. H. JOHNSON, 305 Citizens' Bank Bldg., Pine Bluffs, Ark., *Secretary.*

CALIFORNIA.

The next Annual Meeting of the California State Dental Association will be held June 2–5, 1913, in the Hotel Oakland, at Oakland, Cal.—E. E. EVANS, *Secretary.*

The Sixteenth Annual Meeting of the Southern California Dental Association will be held in Los Angeles, on the 26th, 27th, 28th, and 29th of May, 1913.—JAMES D. MCCOY, *Chairman Publicity Committee.*

DISTRICT OF COLUMBIA.

The Annual Meeting of the National Dental Protective Association will be held at the Fredonia Hotel, Washington, D. C., May 20th, at 7.30 P.M., for the election of Trustees and transaction of business.—E. P. DAMERON, *President.;* M. F. FINLEY, *Secretary.*

GEORGIA.

The Forty-fifth Annual Meeting of the Georgia State Dental Society will convene at Columbus, Ga., June 12–14, 1913, beginning Thursday, June 12th, at 11 A.M. Some very interesting lectures and papers will be presented, also an elaborate clinic has been secured.—M. M. FORBES, Atlanta, *Secretary.*

INDIANA.

The Fifty-fifth Annual Session of the Indiana State Dental Association will be held at the Claypool Hotel, Indianapolis, May 20, 21, 22, 1913.—OTTO U. KING, *Secretary.*

IOWA.

The Fifty-first Annual Meeting of the Iowa State Dental Society will convene at Davenport, Iowa, May 6, 7 and 8, 1913, beginning Tuesday, May 6th, at 9 A.M.—C. M. KENNEDY, Des Moines, *Secretary.*

KENTUCKY.

The Forty-fourth Annual Meeting of the Kentucky State Dental Association will be held at the Phoenix Hotel, in Lexington, Ky., on May 26, 27 and 28, 1913. All ethical dentists are invited to attend.—C. R. SHACKLETTTE, *Secretary.*

MAINE.

The Forty-eighth Annual Meeting of the Maine Dental Society will be held on June 25–27, 1913, at Cushing Island, Portland Harbor, Maine.—I. E. PENDLETON, *Secretary.*

NEBRASKA.

The Thirty-seventh Annual Meeting of the Nebraska State Dental Society will be held in Omaha, May 12, 13, 14 and 15, 1913.—WM. A. MCHENRY, *Secretary.*

NEW YORK.

The Forty-fifth Annual Meeting of the Dental Society of the State of New York will be held at Albany, N. Y., Thursday, Friday, and Saturday, May 8, 9 and 10, 1913. The literary program of the meeting will be rendered in the Auditorium of the Educational Building.—A. P. BURKHART, *Secretary.*

NORTH CAROLINA.

The next regular meeting of the North Carolina State Board of Dental Examiners will be held in Winston-Salem, N. C., on May 26th. For further necessary information address F. L. HUNT, Asheville, N. C., *Secretary.*

OHIO.

The Fifty-sixth Annual Meeting of the Northern Ohio Dental Association will be held at Cleveland, Ohio, June 5–7, 1913.—C. I. PECK, *Secretary.*

PENNSYLVANIA.

The Fiftieth Anniversary Meeting of the Susquehanna Dental Association of Pennsylvania will be held at Irem Temple, Wilkesbarre, Pa., May 20–22, 1913. All ethical practitioners are invited to attend. Executive Committee, Drs. A. E. Bull, T. W. Thomas, W. E. Davis, B. A. Courtright, A. J. Heffernan, T. L. Davenport, of Wilkesbarre, Pa.; A. B. Miller, Kingston, Pa.; I. H. Jennings, of Danville, Pa.—E. J. DONNEGAN, *Recording Secretary.*

The Thirty-second Annual Spring Meeting of the Odontological Society of Western Pennsylvania will be held at Hotel Henry, Pittsburg, April 8 and 9, 1913. Practical papers and instructive clinics will predominate. Ethical practitioners are cordially invited to attend.—KING S. PERRY, *Secretary.*

SOUTH CAROLINA.

The Forty-third Annual Meeting of the South Carolina State Dental Association will be held on The Isle of Palms, June 25–27, 1913.—W. BUSEY SIMMONS, Piedmont, *Recording Secretary.*

TENNESSEE.

The Tennessee State Dental Association will hold its annual meeting in Nashville, June 5–7, 1913.—C. OSBORNE RHEA, Nashville, *Secretary.*

TEXAS.

The Thirty-third Annual Meeting of the Texas State Dental Association will meet at Temple, Texas, May 15–17, 1913. For further information address J. G. FIFE, *Secretary.*

WISCONSIN.

The Wisconsin State Board of Dental Examiners will convene in Milwaukee, at Marquette University, on June 16th, at 2 P.M., for examination of applicants to practise in Wisconsin.—W. T. HARDY, 422 Jefferson St., Milwaukee, *Secretary.*

THE EDUCATIONAL ALLIANCE

EDITOR DENTAL DIGEST:

One of my associates, the principal of one of the larger schools in the congested districts of Brooklyn, has enlisted the coöperation of some of the dentists in his neighborhood in the formation of a dental clinic for the benefit of those children attending his school who are in urgent need of attention because of the extremely bad condition of their mouths. Most of the appliances required for the work have been donated by the dentists of the neighborhood themselves, but we have been unable to procure a drill.

I have tried to procure one for him from almost every conceivable source. Will you let me enlist your good services in a cause in which I know you are keenly interested? There is no dental clinic of any kind in the East New York section of Brooklyn, and it occurs to me that if you gave these facts publicity in your journal someone with a surplus of appliances might be willing to help us out of our difficulty.

With sincere appreciation believe me to be,

Very truly yours,

(Signed) HENRY FLEISCHMAN, M.D., *Administrator.*

NATIONAL DENTAL ASSOCIATION

The 1913 Session of the National Dental Association will be held in Kansas City, Mo., July 8th to 11th. The Local Committee of Arrangements have selected the Baltimore Hotel as "Headquarters" and made the other necessary arrangements for this meeting. The officers and committees are planning to present an exceptionally interesting program, the details of which, together with the other arrangements, will be presented in later Journals.—FRANK O. HETRICK, Ottawa, Kan., *President;* HOMER C. BROWN, 185 East State Street, Columbus, Ohio, *Recording Secretary.*

SOUTHERN DENTAL SOCIETY OF NEW JERSEY

The regular meeting of the Southern Dental Society of New Jersey was held on Wednesday evening at 8 P.M., in the Dispensary Building, 725 Federal Street, Camden. Professor H. H. Boom, M.D., of Philadelphia, read a paper on "Some of the Newer Metals and Their Uses in Dentistry." The following discussion was opened by Dr. A. R. Slade, of Millville.

Dr. P. B. McCullough, Chief of the School of Dental Clinics of Philadelphia, delivered an address on the subject of "School Children's Teeth." The discussion which followed was opened by Dr. C. P. Tuttle. Both subjects were fully discussed by the president, Dr. W. W. Crate, Wm. H. Gelston, Raymond S. Clark, J. G. Halsey, B. B. Filer, Stanley Ironsides, A. B. Dewees, M. P. Shoemaker, C. L. Henderson, W. H. Matthews, Sarah G. Jackson, C. H. Clarke, F. H. Tomlin, A. K. Wood and Dr. Alphonso Irwin.

A table clinic was given, demonstrating the advantages of the "Precision Dental Shell Machine and New Century Steel Tooth Forms." Two new members were elected —Dr. G. Carleton Brown, of Clayton, and Dr. A. P. Underwood, of Woodbury.

The treasurer, Dr. Mary A. Morrison, reported a balance of $123 in the treasury.

PATENTS.

1,026,665, Packing machine for toothpicks and the like, Maurice W. Forster, Dixfield, Maine.
1,027,216, Obtunder, Julius B. Sapp, Cleveland, Ohio.
1,028,017, Denture, Leo Greenbaum, New York, N. Y.
1,028,363, Blowpipe, Bernard L. Kissel, Joplin, Mo.
1,028,376, Adjuster for blowpipe systems, Philip C. Miller, Chicago, Ill.
1,028,410, Blowpipe, John W. Whitford, Pontiac, R. I.
1,028,539, Dental crown and backing, Robert E. Campbell, Berkeley, Cal.
1,029,031, Combination burner and blowpipe, Arthur H. Schilke, Wilmerding, Pa.
1,029,149, Platform for dental articulators, George B. Snow, Buffalo, N. Y.
1,029,160, Artificial tooth, Franz Wilkner, Vienna, Austria-Hungary.
1,029,258, Dental mirror, Edward P. Beadles, Danville, Va.
1,029,536, Tooth-brush case, Albert H. Flood, Bridgeport, Conn.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.